

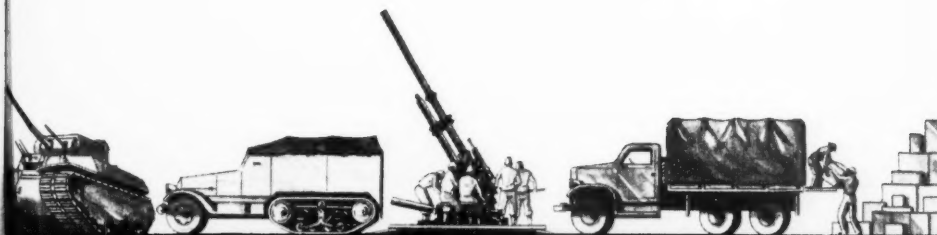
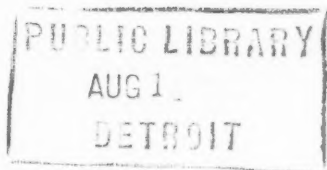
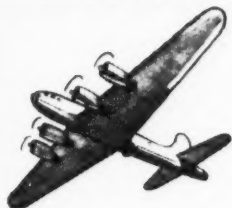
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COMMAND AND GENERAL STAFF SCHOOL

FORT LEAVENWORTH, KANSAS

A MONTHLY REVIEW OF MILITARY LITERATURE

Major General C. L. Mullins, Jr., commanding the 25th Infantry Division in the Philippines, in a letter to the Editor in Chief of the MILITARY REVIEW, made the following interesting statements which it is believed are well worth quoting:

Anything that I or any of my staff could write would be to repeat and emphasize those basic things that you have been emphasizing at the Command and General Staff School for years. Knowledge of terrain values, photo interpretation by commanders and staffs, the old tried and true simple tactical principles, a knowledge of weapons and their use to best advantage, disciplined soldiers and officers, and a definite insistence on the part of the higher commanders that they teach and require to be utilized the advantage of aggressiveness. To stop on today's objective without pushing on, if feasible, is to insure increased casualties tomorrow. Increased casualties have the same effect on the other soldiers as they always have had.

If we have done anything particularly well, I attribute it to discipline and the demand that junior leaders do not let today's sympathy for the tired soldier kill or wound him tomorrow. It's a tough game, and the juniors must realize it but not fear it.

Any sketches I could send would look exactly like the "School Solution" with its wide envelopment arrows or penetration arrows with the holding shoulders.

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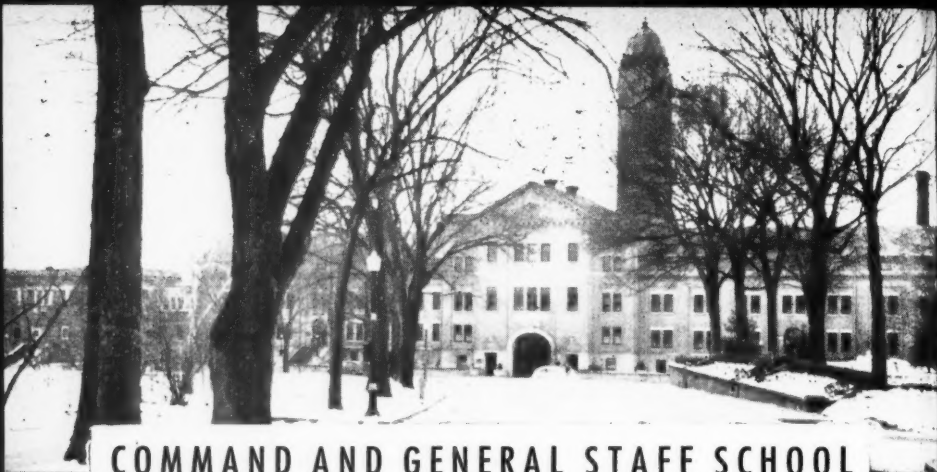
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Some Fundamentals of Command and Staff Work

Digested from Field Marshal Sir H. Maitland Wilson's lecture to the students of the Command and General Staff School.

Field Marshal Sir H. Maitland Wilson, head of the British Joint Staff Mission in Washington, was in command of the British troops in Egypt when the war began in 1939; and under Wavell he led the troops in the desert campaign of 1940-41. From there he went to Greece, and later was in command of the Syrian campaign. In 1943 he became Commander in Chief in the Middle East where he remained until taking over from General Eisenhower as Supreme Allied Commander in the Mediterranean in January 1944. He successfully directed the Allied troops in Italy and the invasion of the South of France.—THE EDITOR.

INFORMATION.—In war, the importance of intelligence work cannot be overemphasized. All sources of information must be tapped and this information checked with cross bearings whenever possible. All information must be properly digested, and an intelligence officer must be as impartial as a judge in summing up evidence. His own ideas should not be allowed to obtrude in any appreciation. There are many examples where the intelligence staff failed to appreciate the enemy's plans and intentions, although there should have been ample evidence: the German advance at Cambrai in 1918, the failure to appreciate the arrival of German tanks in Libya in 1941, and, more recently, the German offensive in the Ardennes.

SURPRISE.—The element of surprise is very important on the high levels. The number of people in the know must be limited to the minimum, and as little as possible must be committed to paper. The British attack at Sidi Barrani in 1940, for example, when only five people knew the intention up to the eve of the attack, well illustrates this point. The troops thought that they were to carry out a rehearsal. Thus, not only were the enemy deceived, but there was also

no leakage of information back in Cairo, which in those days was almost equally important.

SPEED.—We cannot but stress the importance of speed, which is achieved not only by making troops move fast but also by intelligent anticipation by the staff. They must always think ahead and study requirements and the possible causes of a breakdown. Bad and sketchy staff duties will act as a brake and not as an impetus. The staff must know their job and not just pass airily over detail.

CONCENTRATION OF EFFORT.—As to concentration of effort, the decisive spot must be selected and the maximum resources applied to it. The flat-wash effort must be avoided. Resources are rarely sufficient to go around and must be carefully distributed. If support is inadequate, a high percentage of casualties will be the result and will frequently lead to failure. Whenever possible, the maximum use must be made of all the services, sea, land, and air.

INTEGRATED STAFFS.—Our integrated staff in the Mediterranean worked very well. The heads of sections and their deputies were alternately American-British, British-American. Judging by this example of joint effort during the war, we may be very optimistic about the achievements this same joint effort between two nations could make in the future.

STICKING IT.—The will to succeed, even when circumstances are most adverse, leads to success, and many failures have occurred for want of the extra effort to win through, both in attack and defense. The enemy's difficulties must be considered before taking stock of one's own. This was demonstrated in the first battle of Gaza in 1917, when, after battle had been raging since dawn, the commanders of both sides decided that they could no longer stick it out and ordered a withdrawal for four o'clock in the afternoon.

The Man You Are to Kill

LIEUTENANT COLONEL CHARLES W. DAVIS, *Infantry*

Instructor, Command and General Staff School

The author of this article saw action on Guadalcanal in the Solomon Islands from December 1942 until February 1943, during which time he was Executive Officer of an infantry battalion with the 25th Division. From 1 August until 25 September 1943 he was in the New Georgia campaign (Munda and Arundel), acting as Commander of an infantry battalion with the 25th Division.

Colonel Davis was awarded the Congressional Medal of Honor as the result of his actions during 12-13 January 1943 on Guadalcanal.—THE EDITOR.

THE Jap came close! That phrase fits the situation so far as the Jap is concerned. Prior to Pearl Harbor, clothed under the shrouds of strictest secrecy, the Japanese skillfully prepared for their war in the Pacific. They developed bases, both offensive and defensive; they organized, trained, and equipped a mighty land army, patterned, cut out, and put together for the type of warfare they knew they would become engaged in. They produced a formidable naval force which was not to be reckoned with lightly, and concurrently established an air force which was capable of supporting their proposed operations. To sum it up once more, the Jap came close!

Prior to Pearl Harbor, we had underestimated the Jap and on the whole regarded him as a bantam, saki-soused race that could be wiped from the face of the earth with one great stroke. Then Pearl Harbor blazed into view and we began changing our ways of thinking as far as the Jap was concerned. Due to the many stories, true and otherwise, that inevitably float from the battle areas, we began to think of the Japanese as super-soldiers. In fact, fear of the unknown linked with reports were enough to bring about a subconscious feeling of uneasiness toward the Japanese situation. It took the greatest teacher of all, actual battle contact, to extinguish this blaze of fear almost entirely. So it has

been an aim since Pearl Harbor to reach that mid-field view concerning the Jap. Respect him? Yes, but not to such a degree that it will affect your combat efficiency.

We certainly feel the necessity, whether we are the private in the ranks or the colonel on the division staff, of knowing our enemy. Let us take a look at a soldier of Japan and his background.

Japan has been a modern nation for only a comparatively short time. It is a nation ruled by force, by strength. While operating under the policy that excluded all foreigners, Japan was ruled by the Shogun. The Shogun had the country divided into large parts, each part being controlled by a lord. Under each lord an army was organized with the warriors known as the Samurai. They were fighting men, living by a warrior's code, and did the bidding of their lord even if it meant death. That sounds familiar today, and naturally so, for when Japan modernized herself and built her present army, these principles so deeply ingrained in the Samurai were carried forth into her present army.

With the Samurai going in mostly as officers in her new Army and Navy, we today see the results of their beliefs. The Emperor has now replaced the old lord as the object of the soldier's affection.

Now as to the individual soldier, we must accept him as a courageous, well-disciplined soldier, physically and mentally qualified for the job at hand. His training is of a very rugged nature, but he is well qualified to stand it since a large part of the Army is made up of men whose stamina has been developed over years of very hard life. It is during this training period that the love for close combat is instilled into the individual soldier and at the same time the fire of hatred, intense hatred, of his enemy is kindled in the mind of the Jap. He is told that whatever the odds may be, the spiritual background of the Japanese soldier will see him through. This fact has been borne out by the

senseless attacks of the Japanese when they were by far on the short end of the odds. It all boils down to the fact that training of the Japanese is designed to create a rugged infantry which they employ as a shock force. They are led to believe the Allied soldier does not relish the use of cold steel, the bayonet, and that they—to take advantage of this fact—must

ter. For example, companies 1, 2, 3, and 4 will be in the 1st Battalion; 5, 6, 7, and 8 in the 2d Battalion; etc. This number of companies is not a steadfast rule, however, as the fourth rifle company is sometimes missing in a battalion organization. Each of these rifle companies will have three platoons. Each platoon will have four squads, three of which are

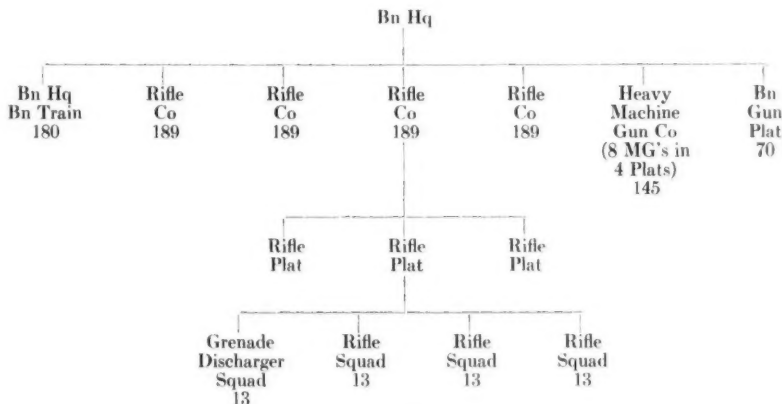


FIGURE 1.

JAPANESE INFANTRY BATTALION.

relish the use of the bayonet as an offensive weapon. Japanese combat training is all business; soldiers have been ordered to double-time two or three times around their barracks upon completion of a forced march of thirty miles or more, just to prove that it matter not what the case at hand may be, the Japanese soldier always has something left within him that will take him.

Now we have standing before us a well-trained Japanese soldier, about five feet three and one-half inches in height, with an intense devotion to duty and Emperor that makes him a tough customer with whom to deal. Let us see what a typical infantry division of these individuals looks like. We will start with the infantry battalion (see Figure 1).

The Japanese have four rifle companies in their infantry battalion, and they number these companies instead of giving them a let-

rifle squads which contain a light machine gun in each, and the fourth squad is a grenade discharger squad. (The grenade discharger is more commonly known as the "knee mortar.")

The heavy machine-gun company has four platoons and each platoon has two heavy machine guns. These guns are cumbersome and therefore difficult to transport, but you will find them present, nonetheless.

For the heavier gun support the Japanese have a battalion gun platoon, which has two 70-mm battalion guns. These are provided for the purpose of close support of front-line units by a larger-caliber weapon.

You undoubtedly have noticed the lack of larger-caliber mortars. Do not be misled, because the Japanese have numerous independent mortar units which are attached to organizations within divisions, giving them

ample support by mortar fire. This fact is being borne out today by the large amount of mortar fire our troops in contact with the Japanese are receiving. The battalion that I have described will total about 1,145 officers and men.

The infantry regiment is made up of three battalions of infantry, an infantry gun company which provides close support for the regimental missions, a signal company and a mounted reconnaissance platoon. Included in the infantry company is a platoon of 75-mm guns and an antitank platoon which is armed with 37-mm antitank guns (probably replaced by 47-mm antitank guns). The strength of this regiment is 3,945 officers and men.

The Japanese standard triangular infantry division has the infantry group, composed of three infantry regiments; a reconnaissance regiment made up of two motorized companies and a light tank company (twelve tanks); an artillery regiment, which has two battalions of twelve 75-mm guns each and one battalion of twelve 105-mm howitzers (however, there have been times when four battalions of artillery were present in the Japanese artillery regiment); an engineer regiment made up of three engineer companies and a materials platoon; a signal unit composed of two wire platoons and a radio platoon; a transport regiment consisting of a horsedrawn battalion; the remaining units in the division are the ordnance, medical, and veterinary units.

It is interesting to note that the Japanese division is organized similarly to the U.S. divisions; however, in comparison they are underequipped and undergunned. What I have shown here is a typical standard triangular division. You must look for any variations in this organization, for the Japanese may alter these units at any time. They pick out a mission for a unit to accomplish; then they design the unit to fit the operation. Thus, many Japanese units are organized as task forces bearing the name of a certain command. The Japanese organization is very elastic and we must keep this in mind. Very often we will find mortar bat-

talions, antiaircraft, and tank units attached to the division.

We met our first armored division operating as a division on Luzon in the Philippines. This division was the 2d Armored Division. They have a total of four armored divisions, so in all likelihood we will meet others. Shown in Figure 2 is a diagram of an armored division made up of 13,500 officers and men.

The Japanese armed forces also contain numerous independent tank regiments.

Another unit worthy of mention is the Japanese independent mixed brigade which to date has made its presence felt in the Pacific war. It is a unit of variable size. It contains from four to eight independent infantry battalions, at times found with and at other times without a tank unit, and an artillery unit manning twelve 75-mm guns or 105-mm howitzers; an antiaircraft unit of six 75-mm antiaircraft guns; a signal unit; and an engineer regiment. It is interesting to note that in recent months some of these units have been transformed into divisions.

As far as organization is concerned, the units listed (or some variations of these units) are the ones we must prepare to defeat. A thorough knowledge of enemy organization is an aid in planning successful operations. For general information and planning purposes, a Japanese army is comparable to our corps and a Japanese area army compares favorably in size with our field army.

Over the Japanese Armed Force rests the Emperor, their God, and it is for him the Japanese soldier gives his all in combat. He believes he has reached his goal in life when he dies on the field of battle for the Emperor and Japan, so it is up to our men to see that the Japanese soldier reaches his goal in life at the earliest possible date.

We have heard many reports concerning the Japanese reluctance toward becoming prisoners of war, and generally they have been true. Casualties numbering over a hundred thousand and prisoners of war numbering in the low hundreds is the rule and not the exception.

The Japanese carry no "missing in action" lists; if a man is not accounted for, the death gratuity is paid the family and a funeral is held in the homeland. They are led to expect torture and extreme cruelty at the hands of the Allies. They have been told, for example,

their favorite type of maneuver. They depend upon surprise and speed of movement and generally start a flanking movement of some size immediately upon contact. The Japs tend to make close envelopments which permit them maximum speed of execution and closer con-

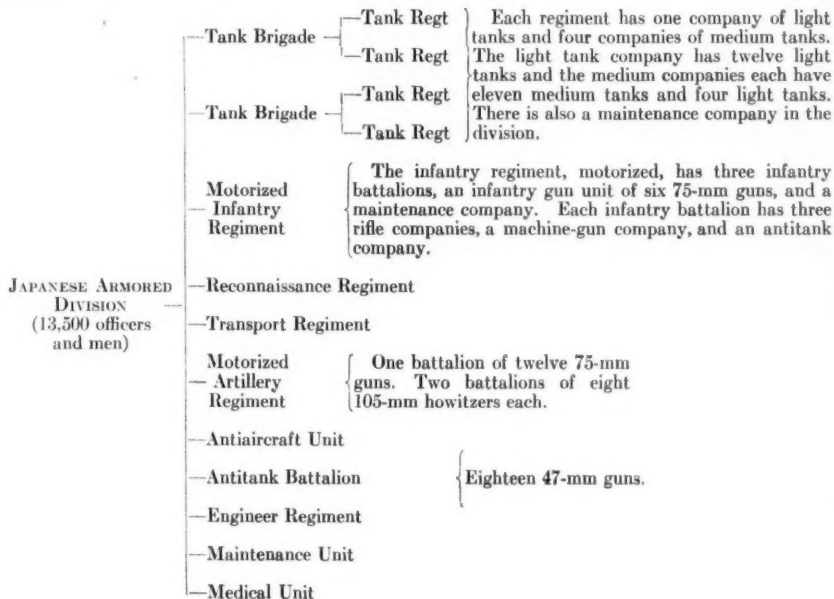


FIGURE 2.

JAPANESE ARMORED DIVISION.

that, if captured, the bone in their forearms would be removed, shaved down, and sent to the White House in Washington as souvenir letter openers. The large majority of captured Japs have been excellent sources of information. It can be readily understood that if a man is told he is never to become a prisoner of war, he cannot be taught at the same time how to conduct himself in case he is taken prisoner.

In discussing tactical doctrines, it is well to start with the offense. Especially during the training period, the spirit of the offensive is drilled into the individual soldier.

The Japanese employ the envelopment as

control over units. One of the favorite missions of the enveloping force is to get astride our main supply routes.

So it is well to be prepared to meet a flanking attack from either side as soon as contact is gained. The main point to remember is not to allow Japanese units disposed to our flanks and rear to alter our plans of operations. Cut them off, take care of them with mobile reserves, but do not allow their presence, only, to cause a withdrawal of your troops. The Japanese have won some victories at a very cheap price by the use of these tactics.

In a meeting engagement, invariably the Japanese will make an envelopment, but at

the same time pressure is maintained frontally. This pressure is usually maintained by machine-gun and mortar fire with few troops. The meeting engagement is well liked by the Japanese. They have trained extensively in order to be proficient in this type of engagement.

They consider themselves superior to their enemies in this type of engagement because they believe they contain a higher degree of mobility within their units. At the same time, they believe, since we are slower going into action than they, that they can gain a quick decision by denying us the use of plans of action already prepared; also, their heretofore deficiency of artillery is minimized since we, being in contact, cannot use ours on the front line. In other words, in a meeting engagement, the victor is the man that moves first and best. It depends upon a rugged infantry, and there the Japs believe they have us bested.

Penetrations are made by the Japanese with the purpose of fanning out to both sides in the rear, disrupting our plans and throwing our ranks in confusion. Penetrations are usually made at night along marked routes. Reconnaissance will have been thorough. Watch for vulnerable points in your lines, for the Japs are apt to find them and use this sector as their point to strike.

Infiltration by the Japanese is something to be considered, since it is one of their common practices. As I see it, they filter through our lines in order to (1) gain information, (2) lie in ambush along our supply lines, and (3) gather at rally points in order to destroy installations such as supply dumps and gun positions. This type of operation will generally be conducted at night—that is, the actual moving through our lines—but the ambushes and small attacks in our rear areas are conducted day or night.

I believe the discussion of suicide units is worthy of mention. For a while it was believed an officer should accompany these units, but due to the loss of many officers, higher headquarters decided it would be all right if an NCO accompanied these groups. The point is this: they have been emphasized

greatly and have taken their place in the Japanese tactical program. These are not haphazardly organized units; they are units designed for a certain mission, they prepare their missions, analyze their targets, and their objectives are very carefully considered. These units go out after air fields, command posts, armored concentrations, artillery positions, and other suitable targets. The trend in the use of these units is on the up-grade for the Japanese. They are playing down the suicide note and are designing units to accomplish these same missions but return. One such unit is the raiding party, made up of three to five men including an NCO. They are usually or frequently led by Formosans because of their acuteness of vision and hearing. These parties are equipped with high explosives and incendiaries. After taking care of a suitable target, they get away. There are many such units that range in size from three to five on up to several hundred. The larger units actually have been known to set up bases of operation behind our lines, ambush our supply column, patrol for information, make surprise attacks, and then withdraw. There are many different names for these units and many different sizes also, but the point to remember is that all Allied units must have previously-prepared plans for defense of installations and that they must have been rehearsed. Then these before-mentioned raids will fall under the category of nuisance raids.

The Japanese army favors the night attack, and they have trained their troops in the art of night attack. It gives them a much greater chance to achieve surprise, and the achievement of surprise is all-important to the Japs. The Japs may try to attain total surprise by attacking in force with no previous firing, or they may employ small groups of soldiers in harassing roles all night to keep us on edge and then launch the main attack about dawn or shortly before.

The objectives for the night attack are chosen; reconnaissance of the area is frequent and thorough; attempts are made to draw fire, especially from our automatic weapons which upon detection by the Japs

are listed as objectives; routes are marked to forward assembly areas. The frontages are narrowed at night and plans are as simple as possible. In a night attack the Japs depend upon achieving success by the use of hand grenades and close-in fighting against a surprised, scared, and bewildered foe.

To counter this night attack, remain smart, plan your night defense by skillful emplacement of weapons and the best use of terrain at your disposal, and have a warning system worked out.

This is an attack the way I see it. It is about an hour before dawn. The attacking troops have moved into position. Reconnaissance has been aggressive; our own troops have been harassed all night and our positions have been thoroughly analyzed. Our positions will be thoroughly gone over with Jap grenades, mortar fire, and now artillery fire. Light machine guns are up with the assault troops; their heavies are sighted on our known points of resistance. Then the attack begins with a frontal assault along marked routes. After they have gained contact they will remain aggressive while the main attacking force moves in a single or double envelopment of our positions toward their objectives. Then after gaining our rear areas they endeavor to cut off and destroy our positions. These attacks can be and have been effectively stopped.

The Japanese believe in the inherent superiority of the offensive, but on many occasions this superiority is contained in the mind of the Jap officer only, and he will order an attack against overwhelming odds. This thought must be kept in mind, as it tends to make war against the Japanese a lively occasion.

Due to the stress placed on the offensive, we must certainly keep in mind the fact that if the Japanese is thrown on the defensive it will be an active defense. Since being thrown on the defensive by the Allied effort, the Jap has shown that he is adept in the art of defensive warfare. As far as terrain is concerned, the Jap uses it admirably. He picks the easy ground to defend and if you want to get him you must play in his own

ball park. The Jap does not like to fight in open terrain because he is smart enough to know our fire superiority, and he knows that the means we have at our disposal will become increasingly effective as we move into open warfare. Given the time to do so, the Jap commander will organize his position with mutually-supporting pillboxes prepared in depth. The pillboxes will contain anything from light machine guns to heavier-caliber weapons. These guns will be given close-in all-around protection by individual riflemen (often concealed in spider holes) and by other pillboxes. Although, at times, positions have been selected that do not command wide fields of fire, you will always find that vital avenues of approach to the position as a whole are covered. It has been noted the Japanese are very effective in the siting and emplacing of positions so as to bring the most effective fire upon their enemies. The Japanese can play a waiting game and will allow you to approach within a few yards of their positions before fire is opened on your advancing troops. This, they believe, tends to confuse us and will not allow our plans to be executed smoothly. On occasions it has been observed that upon close contact when it would become necessary for our troops to withdraw in order to receive artillery support, the Japanese would follow our withdrawals in order to get out of our artillery fire and also give us a surprise when we resumed the offensive. Of course, this action can be successful only on very close terrain.

The Japanese defense against amphibious operations has changed considerably since the invasion of Tarawa by the U.S. Marines. They say fight on the beach if possible; but it is too dangerous to stay on the beach during bombardment, so deep zones of resistance must be prepared with key points selected for purpose of counterattack. Reserves and equipment must be mobile, heavy artillery must be so emplaced and communications so installed that they will function despite bombardment. Coastal defenses must be in depth. Iwo Jima is now the classic Japanese example of island defense. There, artillery fire in conjunction with mortar fire was all set to fire

on prearranged planned areas. Caves were constructed on different levels, most of them connected underground. Some "caves" would hold as many as 300 men. All pillboxes were mutually supporting. Jap positions were well protected from air and naval bombardment. There, as in so many other places, the burden of reducing these positions was placed upon our foot soldier, who can get the Japs out by digging them out or by burning them out.

It is a known fact the Japs do not like intruders in their rear areas. On many occasions they have withdrawn after being outflanked, but do not be led to believe that each time you outflank a position the Jap will pull out, for that is not the fact.

The Japanese now carry out their large-scale Banzai attacks less frequently, but sit tight in well-prepared positions, contesting every inch of the ground. They sit there, going into deep holes as our artillery opens up and then remanning their guns when artillery fire ceases. When a position becomes untenable, they withdraw deliberately to previously prepared positions. Upon reaching the final line, as in island warfare, they will fight until the last man is killed.

During this deliberate defensive battling you may expect counterattacks and infiltration tactics to be carried out, keeping in mind at all times plans for repelling a Japanese amphibious move to our rear areas whenever it is possible for him to move by water.

If the Jap is driven off the high ground, he will fight you in the valley. He is also adept in fighting from reverse slope positions.

In Burma the Japanese were known to have defended river lines on the enemy side of the river.

Count on the camouflage of Japanese defensive positions being excellent.

The Japanese are slow to react on the defensive to cope with a sudden change in the situation.

We must count on a hostile civilian population as we move north. I mention this fact because the Japanese are counting on

the use of civilians for defense of areas and are making their plans accordingly.

On the defense, the Jap is tenacious and will fight from well-prepared positions on difficult terrain, but he can be defeated by skilful execution of the kind of fire and movement we have available to us today.

Weapons of the Japanese Army were designed originally for operations previously planned. They have caught on to the idea that they must improve their weapons as the war progresses and are taking steps to do so. They have realized that the rifleman alone with his bayonet will not win the victory; this is contrary to their earlier beliefs.

The weapons of the individual rifleman—the rifle, the bayonet, and the grenade—are inferior to ours but are good weapons.

Light machine guns are organic to the squad and are effective weapons. They are used with assault troops and are easily handled.

The heavy machine guns are difficult to transport by hand but are formidable guns. They lend fire support to attacking troops by engaging points of resistance holding up their advance. The heavy machine gun is a good defensive weapon.

The Japanese have the 70-mm battalion guns and the regimental 75-mm guns to furnish heavier-caliber fire for assault troops.

When any Japanese force of a size worthy of contest is met, intense mortar fire in large quantities will also be met. Japanese mortar fire is accurate. Independent mortar battalions have been organized and are attached to combat units to increase fire power. In the offense, mortar positions are moved frequently.

The Japanese have taken great strides forward in the use of artillery. In early campaigns, especially in the jungle, artillery was conspicuous by its absence. They believed it unnecessary in this type of terrain. Again they were depending on a rugged infantryman. In the Okinawa campaign massed artillery fire from large numbers of guns was encountered. Many of the guns were kept in underground positions.

The Japanese are a patient race. This

virtue of the race is shown in their use of weapons. They fire conservatively. They hold their fire until a good target is presented. You will not find the Japanese wasting ammunition on a large scale, but they will hold off until their concentrated fire will achieve maximum results with a minimum expenditure of fire.

The Japs are well behind the other warring nations in the construction and use of tanks and other armored vehicles. At the start of the war their use of mines was a haphazard affair but now they are beginning to lay mine fields of definite patterns. The Japs have used regular mines covering depth charges and in some places have installed 1,500 pounds of dynamite in one spot.

Rocket are in use by the Japanese and

must be considered when opposing this enemy.

What does the Japanese soldier think of us as soldiers? It all boils down to this: "They lack the will to assault; their fire power is good and accurate, but take this support away from the Allied soldier and he is easily annihilated. He lacks the love of cold steel." The Jap admits we are very skilful in the use of weapons.

It may seem that I have played the Jap into too formidable a position by the foregoing words, but I have played down weaknesses and shown his good points so we can plan accordingly. The Japanese had several years' start on us but we have learned his game, selected his good points, used them, and instituted others, thereby creating a pupil that can lick the teacher.

New Rockets

Digested at the Command and General Staff School from an article in *Army and Navy Journal* 5 May 1945.

Two new types of rockets which add materially to U.S. fire power are disclosed by the Navy's Bureau of Ordnance. They are the spinner and the high velocity aircraft rocket (HVAR).

The spinner, first produced in October 1944, was first used in combat at Iwo Jima in February 1945.

The spinner is a big brother to the 4.5-inch beach barrage rocket that has been used by both the Army and the Navy since the war's early amphibious operations. It is designed to be launched from a variety of multiplutube launchers mounted on either vessels or vehicles.

The spinner is stabilized, not by fins as are the older type rockets, but by rotation in flight similar to that of a gun-fired projectile. This spinning motion prevents tumbling, tending to keep the rocket on its course. Several methods of imparting spin have been tried, but an angle discharge of

the gases from the motor's end piece—the method chosen by ordnance experts for these Navy spinners—has proved most satisfactory.

Initial combat use of the HVAR came in the Normandy breakthrough last July. They were launched from Army P-47's against locomotives, tanks, armored cars, gun emplacements, and concrete defenses.

The HVAR has proved effective in attacks on shipping, land installations, and other special targets, and has been used to good advantage in recent aerial strikes on Japanese industrial centers.

The speed of the plane gives the HVAR sufficient initial velocity to stabilize it before it leaves the lightweight launchers under the wings. With the plane speed plus that imparted by its own propellant, a high velocity is achieved. It can penetrate the average pillbox with no difficulty and its precision makes it a valuable weapon in knocking out resistance of advancing troops.

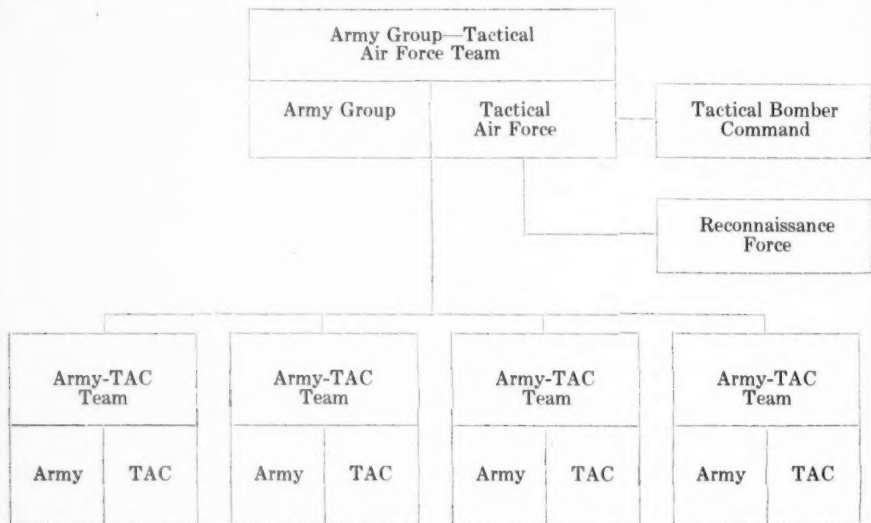
Air-Ground Integration

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CALL it what you will—air support, combined air-ground action, coordinated air-ground effort, the air-infantry team, or any other of many terms—we are all talking about the same subject. Or are we? Perhaps this is the fallacy. We assume that we have a common denominator when we haven't. We need this denominator—a term that we all understand, so that, when it is used by ground and air officers, both will be sure of their footing and know what they are talking about.

force and its organization is dependent on two major factors: (1) the strength, size, and capabilities of the hostile air force it is opposing, and (2) the size and organization of the ground force with which it is working.

Normally, a large-scale operation against enemy air and ground forces involves an army group and a tactical air force. The army group is a force consisting of one or more armies. The tactical air force is an organization provided to work with the army group.



Let's choose "air-ground integration" for purposes of this article. Let's see what agencies are involved, and then discuss some basic principles that should be observed by both air and ground commanders.

The air organization in a theater of war which pulls together with ground forces to destroy the enemy is an air force. This air force is normally referred to as a tactical air force because it is equipped, organized and trained for a mission requiring, to a major extent, the integration of air and ground operations. The size of such an air

Organization of both forces must be the result of long-range planning by higher planning staffs. If it is decided that the army group is to be organized of four armies, then normally the air force will have four tactical air commands. These tactical air commands are often referred to as TAC's and they are the units of a tactical air force that "team up" with the army for the common job. A TAC normally consists of fighter units which are trained and equipped for air-ground operations. In addition to the TAC's provided by the tactical air force to form the army-

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TAC team, the tactical air force has a tactical bomber command made up of medium and light bombers also trained and equipped for integrated air-ground operations, but not to the extent that it may team up with an army. Instead, it is normally used in the furtherance of army group-tactical air force long-range plans. The use of this force may involve air operations affecting the overall plans for the campaign or it may involve reinforcement of an army-TAC team in a critical ground or air situation. The tactical air force also has a reconnaissance force, normally a wing or a group depending on the size of the ground and air forces. This force is trained and equipped to provide photographic and visual information of the enemy for the benefit of the entire air-ground force.

Dispositions of the enemy on the field of battle often necessitate revisions in the organization of our forces. If such is the case, both organizations are flexible and may be reorganized and shifted about to meet the given situation. Subordinate units may be shifted from one army-TAC team to another in the event that such changes are necessary.

After a general plan for the employment of air and ground forces has been developed, it is at army and tactical air command level that pick-and-shovel joint planning is a "must." If plans are carefully laid, executed, and controlled at this level, desired results, gratifying to both ground and air, will be achieved.

Concerning principles of air-ground integration, there are several important ones that must be fully appreciated by both commanders. A thorough understanding and realization of the importance of these several major principles is the factor that determines the degree of perfection to be attained. One commander is not the answer, but rather negotiation between two open-minded men—the top ground and air commanders of the forces involved.

First, and of utmost importance, is an integrated plan. To develop a plan for the ground forces and then call upon air to supplement the overall plan with air operations is a mistake. From the outset, it is essential

that the staffs of air and ground forces should work together on a joint planning basis. The plan for integrated air-ground action must be developed concurrently within the framework of the overall plan for the operation. To develop the ground logistical and tactical plan and then ask air to augment the plan places air at extreme disadvantages which could easily have been avoided had planning been conducted on a joint basis.

There must be a favorable air situation. That is, our forces should have air superiority in the area of contemplated operations. We must first place the enemy's air force "behind the eight ball," operating at a disadvantage. His installations and facilities must be attacked time and time again to disrupt and destroy his air force to a degree which will enable our air and ground forces to operate without serious interference. This is a task that falls only to the air force commander, and until this job is done the ground commander must wait. It normally involves the use of the entire tactical air force, and centralized control of all air under the air commander is necessary for its completion.

However, this task of achieving a favorable air situation is not one that is accomplished and then forgotten—it is a continuing action and one that receives first priority from both air and ground commanders throughout an entire campaign. The enemy air force is never beaten into unconsciousness. Remember his air force is flexible also—and at any time he is capable of massing the remaining operational portion of his force and hitting us when we least expect it. Because of this capability, it is essential that the air commander always maintain centralized control of his force. He must be capable of employing the full weight of his force in any critical situation resulting from unexpected enemy ground and air action. Ground CO must recognize and accept this fact.

Weather is of vital importance in air-ground action. It restricts the use of the air force. Air-ground plans must possess a degree of flexibility that will enable postponement from hour to hour or day to day until weather is favorable for both forces. Weather may be

such that enemy air forces can operate when our own forces are grounded. Such is often the case, and the ground force commander will find it necessary to make provisions in his plans to protect his own forces from hostile air attack without air assistance.

Ground forces must always accept certain responsibilities toward the air force. Perhaps the most important of these is the provision of common supplies and the movement of both common supplies and air force supplies for the air forces. Air force movement of supplies and units must be recognized and provided for in the overall plan. In many instances joint air-ground effort will have to be directed towards capturing areas for the sole purpose of providing adequate air fields for air force units. And if the situation demands, the ground force must provide troops to protect these advance bases from enemy ground attack if air force units are to operate from them.

Army and tactical air command should operate from adjacent headquarters in order to promote close individual contacts, a con-

stant exchange of information, and a frank interchange of views between commanders and their staff officers. However, if adjacent headquarters are not possible, then a representative staff of one service should remain at the headquarters of the other.

If air-ground plans are carefully laid at army-TAC level and then properly executed, it has been proved that maximum results can be gained from air-ground integration. These plans will provide for ground direction of aircraft to targets without loss of flexibility or air force control. In fact, it increases flexibility by permitting a forward battalion to have instant use of air power without curtailing the ability of the air force control system to resume control over all aircraft practically instantaneously whenever necessary. However, it cannot be overemphasized that operations of this nature are possible only when the enemy air force has been forced to retire from active participation in the battle area and when friendly aircraft are present in sufficient quantity.

African Colonial Navies

Digested at the Command and General Staff School
from *The Fleet* (Great Britain) May 1945.

THE naval forces of the colonies saved the Royal Navy incalculable quantities not only of time but of men and ships needed more vitally elsewhere.

On the West Coast of Africa, all four British colonies raised naval forces, primarily to defend vital harbors. Actually, one of the most important of West Africa's naval efforts was the contribution of men to the Royal Navy, but, at the same time, volunteers stood ready for any trouble that might approach the West Coast.

The Nigerian Naval Defense Force carried out the colony's Naval Control Service, provided vessels and personnel for whole-time minesweeping duties, carried out twenty-four hour patrols, and organized the Examination Service with its pilotage craft and personnel. The Naval Volunteer Force of the Gold

Coast did good work in carrying out minesweeping duties.

In East Africa, the Kenya RNVR [Royal Naval Volunteer Reserve] had a defined role under the Kenya and Uganda Defense Scheme. At the end of 1939 its functions consisted of a Naval Control Service and Examination Service, minesweeping service, and antisubmarine patrols. As the Kenya Navy grew, African volunteers joined the force. Strangely enough, these, for the most part, were not *dhow* sailors or coast fishermen, but volunteers from inland tribes, and they showed great promise right from the start as seamen and signalmen. The Tanganyika Naval Volunteer Force, recently absorbed into the Kenya RNVR, played a role very similar to that of the latter force.

A Brief Review of the Activities of the Army Port and Service Command in Hawaii to Date

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Commanding General, United States Army Forces, Pacific Ocean Areas

I

WHEN, after the long and impatient months of all-out preparation which followed America's entrance into the war, the United States' defensive-offensive period in the Pacific ended with our routing of a major Japanese task force in the Battle of Midway and our successful completion of the Guadalcanal phase of the Solomon Islands campaign, the time to start planning along purely offensive lines had arrived. It was apparent immediately that a reorganization of the Hawaiian Department was necessary if we were to meet adequately the tremendous and unprecedented challenge which amphibious warfare in the Pacific envisioned in this theater. This was to be a type of warfare in which, in all its history, the Armed Forces of the United States had had little experience. Precedents were meager; existing SOP's did not contemplate the sort of operations that were projected. We would have to make the rules as we went along, to experiment, to correct mistakes quickly—in short, we would have to learn by trial and error the things that no one then could tell us.

It was obviously desirable, therefore, in the early part of 1943, that the Command Echelon of the Hawaiian Department be freed to the greatest extent possible from the details of logistics, so that it might concentrate on broader phases of advance planning for combat operations. It became increasingly evident that it would be not merely wise but imperative that we establish within the Department a major echelon whose organization, mission, and functions would be tailored to fit a situation which does not exist anywhere else in the world.

But what sort of an organization should it be? In the continental United States, or on any other large land mass, the solution would be found in the establishment of a Service Command and of a port of embarkation [POE]. But natural insular limitations—

there is no point on the Island of Oahu which is farther removed from the Port of Honolulu than a two hours' trip by motor—plus the desirability of achieving the utmost economy in the use of personnel—made the creation of a separate Service Command and a POE unwise. In any event, the port could not be called nor operated only as a port of embarkation, for its functions as a port of debarkation were and would continue to be of equal importance. Nor, since it would operate in an overseas theater of operations, could the contemplated service organization operate solely as, or in conformity with, the accepted mainland procedure for a Service Command. What, then, should be the scope and designation of the new organization?

The answer was found in the creation of the "Army Port and Service Command," a line-and-staff type of organization under the command of Brigadier General Roy E. Blount. It was established by General Order No. 110, "Reorganization of Hawaiian Department," Headquarters Hawaiian Department, 29 July 1943, under an effective date of 10 August 1943. As its name indicated, it was designed initially to combine the most applicable features of a port with those of a service command. Its four general staff sections were comparable to those of any other organization; its special staff sections, however, were designated and manned, and their functions detailed, not on the basis of precedent—for there was none—but in accordance with what was felt would be most appropriate and useful to the organization in performing its primary port and service mission.

II

The fall of 1943 found plans maturing for the first great combined Army-Navy offensives in the Central Pacific: the invasions of the Gilbert and Marshall Islands. To the new young organization were given the tremendous tasks of staging and billeting the thousands of troops pouring into the area of the

Hawaiian Islands; of organizing their special training in the use of the new amphibious vehicles; of training Transportation Corps companies and officers to run the island ports after the islands themselves had been invaded and occupied; and of performing the many thousands of other service details involved in helping assemble the greatest armadas in history for the initial offensives which eventually would lead to the greatest of all—the invasion of the Japanese mainland. At that time, Japan looked a long and weary way off. But, to quote an old Chinese proverb, “a single step starts a thousand mile journey”—and we were about to take the first step.

Initially, the following functions were assigned to the Army Port and Service Command in support of the Gilbert and Marshall invasions:

To receive and ship the Army supplies required for the operations.

To select, equip, and train the Transportation Corps personnel scheduled to participate in the operations.

To contact all Army units participating in the Gilbert and Marshall Islands assaults, and to acquaint them with the services to be furnished by the Army Port and Service Command of the different phases of the assault.

To screen all palletizing, packing, and crating material requests.

To establish a priority among units and to furnish logistical data and practical suggestions to inexperienced units.

To supervise and coordinate all palletizing activities.

To coordinate traffic control from staging areas to the troop ships.

To maintain constant security of equipment and supplies.

To provide adequate facilities for billeting and training, within the Hawaiian Area, and to provide for their maintenance and upkeep.

The initial planning by the new Command for the Gilbert and Marshall Islands invasions began simultaneously with its designation as a major echelon of what was then

Headquarters, United States Army Forces, Central Pacific Area, formerly the Hawaiian Department. It followed that the success of this first great offensive would depend to no small degree upon the manner and speed with which the new echelon could prepare itself for the enormous jobs of handling an amount of cargo and personnel heretofore unequaled by the Port of Honolulu—of making plans for the vast building program which of necessity had to be undertaken to shelter incoming and outgoing personnel—of preparing new training camps which had to be activated; and of taking care of the tremendous amounts of supplies of all sorts which had to be received, stored, loaded, and dispatched. All these jobs the young command had to accomplish without halting the normal flow of cargo which had to be handled through the Port of Honolulu.

Even in peacetime the normal port load of Honolulu was large because the Hawaiian Islands, not being self-sufficient, must import from the mainland and elsewhere virtually all food, clothing, building materials, petroleum products, etc., which are needed to maintain the population of the eight inhabited major islands of the group. The demands and requirements of the local populace had not decreased, early in the autumn of 1943, but rather were increasing daily with the advent of thousands of civilian war workers imported from the mainland to work on military and naval projects. The new organization, during the preparation for the invasion of the Gilberts and Marshalls, handled a tremendous tonnage of *incoming* cargo from the mainland, much of which was destined for the island assaults. In order to handle this huge tonnage, the organization established within its own framework a Command group for the over-all supervision of military stevedores. This unit, a provisional organization, was designated the Port Group and it handled all the training, administration, and allocation of military stevedores. From its inception the Port Group proved invaluable for control, particularly when the ever-heavy port required twenty-four hour operation of the piers.

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Concurrent with this grouping of port companies was the development and the carrying-out of a training program which was designed to increase the training and skills of all personnel participating in the invasions in the art of discharging and loading ships. The most noteworthy feature of this program was the planning, establishment, and operation of a Transport Quartermaster [TQM] School, situated in the heart of Honolulu. At this school, selected teams of one officer and two enlisted men representing the assault and garrison units were trained in the duties and functions of a TQM. The school, which in its first year and a half has graduated nearly 1,000 TQM teams—3,000 officers and enlisted men—matriculated four classes during the preparation for the Gilbert and Marshall operations. Classes were—and still are—convened at the call of the task force commanders. The objective of the TQM School was to train inexperienced personnel in the principles and practices of combat and garrison loading. At first, textbooks were scarcely used. Later, the school published the Transport Quartermaster Manual embodying the knowledge gained in this field through experience. The TQM teams continued to spend most of their time studying actual loading and stowing and discharging operations in the always busy Port of Honolulu.

The Gilberts and Marshalls were seized and occupied—plans for future operations were already off the blueprint board and into operation.

Many lessons were learned from the Gilbert and Marshall invasions. In order to show diagrammatically the changes which occurred in the organizational structure of the Army Port and Service Command during the period which extended from the planning stages of the operations to their subsequent completion, two illustrations are offered (Figures 1 and 2).

For a long time it has been obvious that the peacetime facilities of Honolulu harbor would be far from sufficient for receiving and dispatching the unprecedented volume of wartime cargo which would stream across her thirty-one piers. Army engineers in the early

summer of 1943 began the great task of deepening and widening the channel and of constructing additional piers. (By early 1945, these piers were capable of handling an almost unbelievable increase in tonnage.) This building and reconstruction was going on at full speed throughout the period of preparations incident to the larger and more westward invasions which were being geared into operation.

Following the successful completion of the Gilbert-Marshall Islands campaigns, strategy dictated a bypassing of the remaining Japanese-held islands in the central Carolines. Our next target would be only 1,200 miles from the home islands of Japan—the Marianas. Initial planning for the Marianas began early in 1944. By now the Army Port and Service Command had proved itself an indispensable element in the Central Pacific Area Command's progress toward the Japanese homeland. SOP's were now shaping up. The mission remained the same.

In the planning stage of the preparations for the assault of the Marianas, it was necessary to determine the approximate amount of tonnage which would have to be handled in order to determine the number of port and DUKW companies required. In determining the number of port and DUKW companies, studies were made of the Marianas Islands' port and harbor facilities. When plans for the employment of the 27th and 77th Divisions were known, processing space, work carriers, stowage space, palletizing, and billeting facilities of working details were assigned at Fort Kamehameha, a military post near Pearl Harbor. Preparations for the campaign consisted of clearing Honolulu piers of all vehicles and of all cargo in traffic lanes for the embarkation of troops; of arranging for escorts to direct convoys into the piers; of designating assembly points within the piers to aid the embarking troops in boarding vessels without delays or confusion; and of posting security guards within the piers to prevent pilferage or mishandling of equipment and supplies (one of the lessons learned in the previous operation).

As before, during the preparation and sup-

ORGANIZATION ARMY PORT AND SERVICE COMMAND

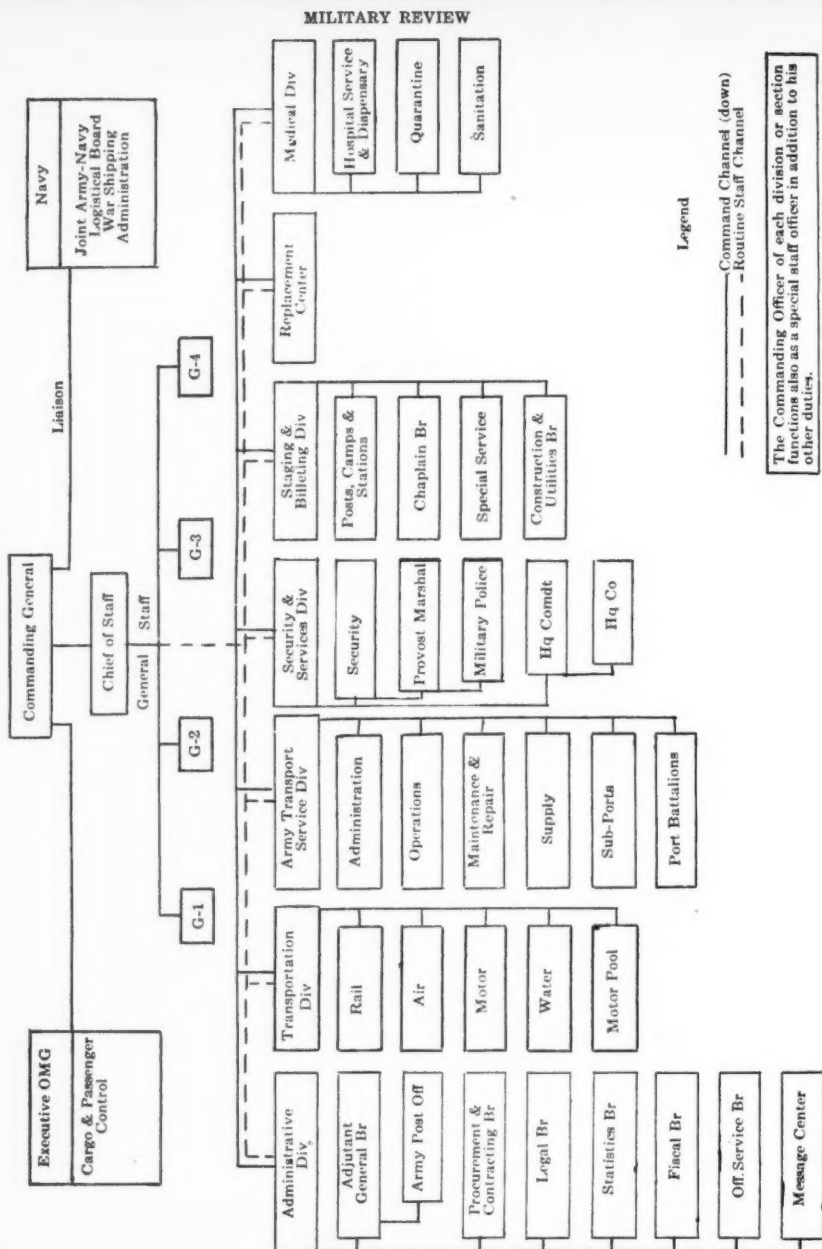


FIGURE 1.



port of the Marianas assault, the normal flow of cargo through the Port of Honolulu was not interrupted. Stevedores, both military and civilian, were still working 'round-the-clock shifts as established prior to the Gilbert and Marshall assaults. Transportation of assault forces from staging areas to piers was arranged by the Army Port and Service Command, which also was charged with the responsibility of maintaining liaison with garrison forces and of informing the operating agencies of personnel allocations, embarkation schedules, and any changes in basic plans.

All packing, crating, and palletizing materials for the 27th and 77th Infantry Divisions, together with those for the three garrison forces, were screened by the Command. To eliminate errors by the using troops in submitting supply requisitions and to coordinate all packing, crating, and palletizing operations, an SOP on these methods was prepared and issued by the Command.

Space does not permit a description of the many details which were taken care of by the Command in this operation. It trained many participating troops in military as well as stevedoring and amphibious subjects; it trained Transport Quartermaster teams for all units with the exception of the 27th Division; it moved more than 25,000 men to and from the staging areas; it handled a truly staggering amount of coordination involving the billeting, movement, and embarkation of troops. In brief, an organization which was, militarily speaking, without a counterpart but born of necessity, had proved itself of immense value to the over-all plan of conquest in the Pacific.

III

Within a matter of months the Gilberts, Marshalls, and Marianas had been invaded and secured. Shortly after the echo of enemy guns on these islands had faded, the Army Port and Service Command was given plans for the invasion of the Palau Group islands of Angaur and Peleliu and of Yap, in the Western Carolines. The Command had now passed through what might be termed the

adolescent period and was able to function with the ease and adaptability which comes only from experience. Consequently, when strategy dictated that Yap, the largest of the three targets, was to be bypassed and the troops initially designated for the operation were to be used instead for the contemplated conquest of Leyte Island in the Philippines, the change in plans caused no perturbation. The diversion of troops from this theater to the Southwest Pacific Areas command of General Douglas MacArthur was accomplished smoothly and the change of target for those troops created no new problems.

Initial planning for the Palau invasion and for the participation by troops from this area in the Philippines campaign commenced in June of 1944. Units designated for these two actions were the XXIVth Corps, a garrison force and the 7th, 81st, and 96th Infantry Divisions. Basically the mission of Army Port and Service Command was the same as those which had been assigned to it for the invasions of the Gilberts, the Marshalls, and the Marianas. But the tempo and scope of operations had multiplied enormously. Experimental makeshifts, the methods of trial and error which circumstance had demanded in the beginning because there were no precedents to go by, were now no longer required nor desired. The Command was on sound footing now. Its officer and enlisted personnel were old hands at the intricate and never routine business of assisting the combat troops to prepare for their primary mission of killing Japs.

The Command handled arrangements for the billeting spaces, headquarters, and training facilities for the many thousands of men from this area who were to take part in these operations. It rendered invaluable aid in obtaining for the units great quantities of materials for palletizing, packing, and crating the huge tonnages of supplies and equipment that had to accompany both the assault and the garrison echelons. Physical loading of the task-force ships had to be performed by the troops themselves, acting as stevedores—a move dictated not only by the shortage of trained stevedoring personnel but, princi-

pally, by realization that troops would be better able to discharge their ships in the forward area if they had also done the loading; to help these inexperienced stevedores over the shoals of their own lack of training in loading and stowing, the Command loaned the advisory services of trained technicians from the Port Group.

The Command's Transportation Division helped provide the assault units with the all-important high-lifts and roller conveyers they needed to load their ships. For the movement of cargo to the piers it provided 1,961 freight cars of all kinds; for troop movement, 1,611 cars; and for the hauling both of men and cargo the Division furnished 2,089 trucks. On more than one occasion the single-track, narrow-gauge Oahu railway moved 10,000 soldiers to the piers in a single day.

The Command was charged with and carried out the training of the Transportation Corps units and the amphibian truck companies scheduled to participate. The technical training of stevedores required, of course, the help and supervision of port company and battalion personnel whose major and simultaneous responsibility was moving Army troops and cargo across the piers of Honolulu expeditiously by the simply stated but not so simply executed method of loading and discharging ships as fast as it is humanly possible to do so. That our port officers and enlisted men accomplished their mission of helping train outgoing units, and at the same time kept the Port of Honolulu at or near the top of the list of all the ports of the world in rapidity of ship turn-around time, is indicative of the soundness of the Command's organization as well as of the efficiency and loyalty of its personnel.

Of the divisions scheduled to take part in the operations, only the 7th—veterans of Attu and the Marshalls—had men experienced in Transport Quartermaster work. TQM's of the XXIVth Corps included personnel who had served as observers during previous assault landings. But the garrison units and the 81st and 96th Divisions especially needed help in readying their TQM sections for their first combat operations. To them the Command

rendered great assistance through the medium of its by now veteran TQM School. For the school, too, had benefited greatly by the experience of previous operations. Its files of ships' characteristics and stowage plans now covered many of the vessels that were scheduled to embark for Palau and the Philippines. At school the TQM teams learned not how to load a theoretical ship with theoretical cargo but were given practical instruction, based on practical lessons actually tested under actual conditions by other TQM teams aboard vessels that soon were to be loaded under the direction of the students. After graduation from school, the TQM teams rejoined their units. When they found out to what vessels they would be assigned for embarkation, the team members returned to school for a comprehensive and detailed review of the characteristics and stowage possibilities of their ships and for direct assistance in preparing a workable plan.

In these and in many other ways a very high degree of service was rendered to the embarking troops. For essentially, rendering service is the Number One Mission of the Command.

IV

The success of preparations for a military operation can be determined only by the eventual outcome of battle. Modern warfare is too vast and too complicated for one man to understand and correctly appraise all of its minor but vastly important details, particularly when they are component parts of an operation as far-flung as that against the Philippines. The fact that it used troops from two theaters, that planning was going on simultaneously in places many thousands of miles apart, and that the coordination under the brilliant leadership of General MacArthur of all the diverse and scattered pieces of the master plan had to be completed by persons who in many instances never saw one another, emphasizes one conclusion above all others: success of the over-all plan of battle is dependent upon the skilled planning and execution by all echelons of all of the component parts of that plan, however secondary they may seem.

In a war as gigantic as the present one, the relative importance of an echelon such as the Army Port and Service Command is not to be exaggerated. Nor is it to be depreciated, for not even the magnitude of the present conflict has refuted the truth of the ancient adage that "for want of a nail, the war was lost." This is especially true in the Pacific, where the great distances across which the men and materials of war must be transported serve to accentuate the import-

ance of each link in the chain. When our troops set foot on the "inviolable" soil of Japan's home islands, they will have done so because they were transported there and supplied there by a mighty lifeline of ships, extending for thousands of miles behind them. Because of the existence along the way of such organizations as the Army Port and Service Command, that line will not be broken.

Germany's Third Secret Weapon

From a British source.

A launching site of Germany's third secret weapon at Mimoyecques near Calais was designed to fire a continuous stream of rocket shells on London. The instruments were to be fifty smooth-bore gun barrels, each 400 feet long, sunk 350 feet into the chalk hills at an angle of about fifty-five degrees.

The placements for the barrels had been arranged in two batteries of twenty-five each, both trained on London ninety-five miles away. If they had ever been completed they probably would have rained rocket shells on London at the rate of ten per minute.

Although no ammunition was found, it is estimated that the shells would have weighed 120 pounds with a forty-pound explosive warhead. Apparently they would have been carried to the guns on the standard-gauge railway which had been built up to the site and into the chalk hill through a tunnel 700 yards long.

The tunnel is solid concrete thirty feet high and twenty-five feet across and has an unloading platform inside the hill. Running off from the platform are chambers and galleries. Small tunnels run at a lower level. The whole installation is protected by concrete eighteen feet thick covering several acres. If the work had been completed, they would probably have been invulnerable to any bomb yet introduced.

Parts were found on the site for building a lift. Outside of the entrance into the hill is a 4,000-kilowatt electric generator, also enclosed in a concrete structure.

The whole business was being constructed by the Todt Organization with slave labor. It is only one of seven large-scale sites that were under construction along the French coast. Others were at Wizernes, Watten, Lottinghem, Siracourt, Sottevaast, Martinvaast, and on the Cherbourg Peninsula. All were designed for different purposes, and all were uncompleted. The construction at Wizernes suggests that it was intended for still another kind of secret weapon.

It appears that the proposed German tactics relied on keeping the civilian defense services of London so swamped with V-1 and V-2 that they would be unable to cope with V-3. They hoped the disorganization of the metropolis would then have become so complete that London, the administrative center of the British war effort, would have had to be abandoned.

Constant heavy bombing by the RAF slowed up the work until, in the summer of 1944, the Germans abandoned the work on the sites shortly after the Allied landings in Normandy.

Iwo Jima and Amphibious Operations in the Central Pacific

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—THE EDITOR.

THE attack on Pearl Harbor, 7 December 1941, was the opening of a new period for the armed forces of the United States.

The attack not only marked the break between the Japanese empire and the United States but it was the beginning of the development of a relatively unexplored field of operations—that of amphibious warfare.

It is true that the Marine Corps for years have made a specialty of training for such type of operations. However, the size of the Corps was relatively small and the Army suddenly awakened to the need for amphibious doctrines, tactics, and training facilities. Few realize how little was known of amphibious operations and how unprepared the United States was for the war in the Pacific.

It was apparent from the very beginning that we must move step by step across great distances, destroy the enemy-held bases, and adapt them to our use, before we could reach the Empire. Some enemy strongholds such as Wake, Yap, and Truk could be bypassed, but it was evident that other positions must be secured—secured not only for the operations of our fleet but also for air bases from which we could protect our convoys and from which we could strike enemy positions to the west and eventually the Empire itself. This has been accomplished. Step by step we have taken the Gilberts, the Marshalls, the Marianas, and finally the inner ring of the enemy defenses at Iwo Jima.

It has been a slow, tedious process against difficulties never before encountered by the armed forces. Only through a complete understanding of the capabilities and limitations of the other services, and by the close co-

operation by the Army, Navy, and Marines, have these successes been accomplished.

We have been working against time and unknown quantities. The vast distances have made supply and resupply most difficult. Reefs, something we knew existed but of which we had little information, made landing operations most hazardous. Information on enemy land defenses was meager. Equipment for amphibious operations was not available and that which we had required modification and improvement. The armed forces in the Central Pacific Area started from scratch on 7 December 1941 and since that time they have developed the present methods used in amphibious warfare.

The initial operation, in this area, was against the enemy-held Gilbert Islands. We knew the enemy resistance would be strong, and it was. The reefs surrounding the islands were difficult to traverse and the defenses ashore withstood what we thought then was an adequate air and naval bombardment. We learned many things on this operation that proved invaluable in subsequent strikes. As we progressed through the Marshalls and the Marianas, we made further progress in developing amphibious tactics and applied the lessons learned to subsequent operations.

Shortly after the conclusion of the Marianas Operation, in which the first enemy-held territory was wrested from his control, directives were received to prepare plans for the assault on Iwo Jima.

You may ask, "Why was the operation so difficult?"

It was difficult for many reasons. Iwo Jima is approximately eight miles square, 750 miles from Tokyo, and 3,400 miles from Pearl Harbor. The island is of volcanic origin and little authentic information was available on the beaches or on the island itself. This small outpost came under the control of the Japanese Empire in 1897 and has been considered by them for years as one of their strategic defenses. The enemy spent years in preparing

the defense of this island, and while strengthening this base care was taken to insure that information of their activity was not divulged. A sign on the edge of Airfield No. 1, dated 1937, bore a warning in both English and Japanese, "This is a military installation and no trespassing will be permitted."

The island is surrounded by deep water and no harbor exists in its shoreline. Reefs, usually surrounding the islands in the Central Pacific, were found here only off the western beaches. The gradient at the water's edge is very steep, and the beach and the area inland is covered with a volcanic cinder or ash which makes movement, even by foot, most difficult. The terrain farther inland is rugged and reminds one somewhat of the badlands of Arizona.

The defense system, as prepared by the enemy, was quite intricate, constructed by hand, in depth, well camouflaged, and mutually supporting—a veritable Gibraltar surrounded by the largest moat in the world.

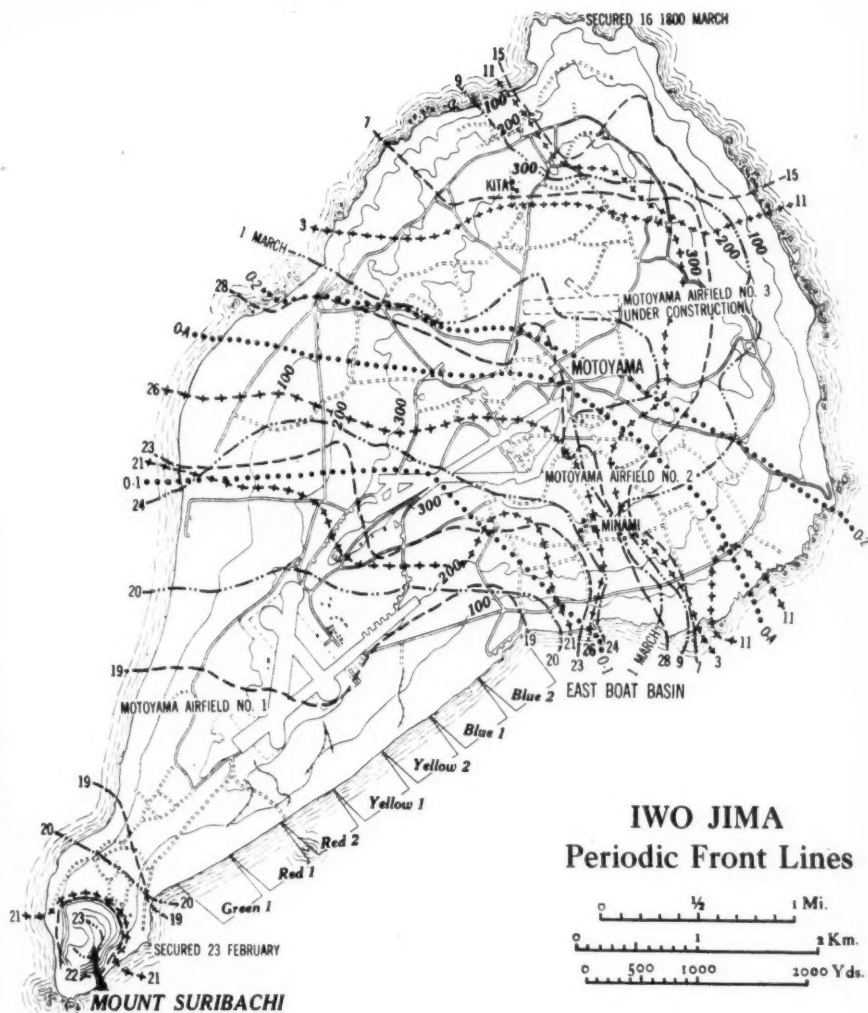
Preparation for the seizure of the island was started months prior to the actual landing. Land-based Army Air Force planes bombed the target on consecutive days for a period of over two and a half months. Naval ships and land-based and carrier airforces struck the island, for three days prior to the landing, with the most intensive bombardment ever delivered on an objective in the Central Pacific.

The V Amphibious Marine Corps (reinforced), in conjunction with naval attack forces, was charged with the mission of attacking, occupying, and defending Iwo Jima. The Corps Operation Plan called for the landing of two Marine divisions in the assault, on the southeastern beaches, with one Marine division in Expeditionary Troops Reserve afloat. The general plan of maneuver provided for the landing of the assault divisions abreast with two regimental combat teams of each division in line. Upon landing, the divisions were to drive westward across the island, and, pivoting on the corps right flank, turn north to seize the O-1 line (see map) within their respective zones of action; then, on corps orders, to advance rapidly and seize

the O-2 line. The right (north) division was to protect the right (northeast) flank of the corps. The left (south) division was to employ its left regimental combat team to seize that portion of the island in its zone of action south of the O-1 line, namely, the Mount Suribachi area. Both divisions were to be prepared to execute further advances on corps order to the north beyond the O-2 line. The Reserve Division was to remain afloat and was to be employed if and when required.

The landing was effected at 0900, 19 February, by the 4th and 5th Marine Divisions with the 4th Marine Division on the right (north). Troops, supplies, and equipment were landed from transports, LSM's and LSD's using LVT's, DUKW's, and small boats.

The initial landing waves met only light opposition to their immediate front. This may be attributed to the fact that the naval gunfire and air bombardment, both before the landing and during the approach across the beaches, coupled with the fire power of the smaller craft during the approach, had reduced the defensive installations, or had otherwise pinned down the enemy. However, artillery, mortar, and heavy weapons fire soon developed on the beaches, on the boat lanes, and in the LST area from strongly defended positions on the high ground to the flanks and interior of the island. Casualties to personnel and material began to occur. Opposition was strong to the front of the 4th Marine Division as they crossed the open and steep slopes to Airfield No. 1 and casualties were heavy. The 5th Marine Division advanced rapidly across the island against light opposition and captured the southern end of Airfield No. 1. RCT (Regimental Combat Team) 28 on the left flank moving to the south was held up by strong enemy positions and gunfire from Mount Suribachi. By 1800, RCT's 23 and 25 of the 4th Marine Division, RCT's 27 and 28 of the 5th Marine Division, and two battalions of RCT 26 in 5th Marine Division reserve had landed. Two tank battalions, four battalions of artillery, and some assault supplies were also ashore. The end of the first day found our troops holding all



of the area between the eastern beaches and Airfield No. 1, the southern tip of this field, west to the coast line and south to the foot of Mount Suribachi.

Naval vessels and carrier-based aircraft continued their scheduled bombardment, except that due to the very strong defenses, heavier concentrations were fired against the enemy gun and troop positions on the eastern part of the island than was originally scheduled.

Heavy casualties occurred to tanks, LVT's, and DUKW's during and following the landings, due to soft sand, beach conditions, and enemy artillery and mortar fire.

The steep gradient and the soft volcanic cinders of the eastern beaches enabled a very moderate surf to present a continuous hazard to the beaching and unloading of all types of landing craft. Craft which could normally beach were broached, and the resultant wave action shifted the soft sands, making salvage most difficult. Beach conditions were unfavorable for the movement of vehicles and only limited amounts of critical supplies were landed the first day. Due to adverse conditions, initial supplies were landed principally by DUKW's and LVT's. After the beach was cleared of small-arm fire, landing craft were called in for unloading and numerous craft broached and were lost. Unloading was limited on this date, and during the major part of the operation, to LCT's, LSM's, and LST's.

By the evening of 20 February the beach-head was considered secured and all but the northern tip of Airfield No. 1 had been captured. Seven battalions of divisional artillery and one battery of corps artillery had been landed by 21 February and were in position to support the assault.

As the attack advanced to the north it became evident that the enemy had no intention of conducting a mobile defense but had committed himself to an all-out rigid defense wherein each tactical locality was to be defended throughout the strongly fortified defensive system. The rear areas and the beaches were subjected to harassing and destructive fires intermittently throughout the

operation by enemy artillery, mortars, and rockets.

The rugged terrain inland made the passage of wheeled and tracked vehicles most difficult and rendered artillery gunfire ineffective. The enemy-held territory was strewn with mines and booby traps, and was honeycombed with heavy buttressed pillboxes, blockhouses, and caves, all of which were mutually supporting and organized in depth.

The attack settled down to artillery, naval gunfire, and air bombardment with slow progress being made by the foot troops. It had not been planned to employ the 3d Marine Division, then in Expeditionary Troops Reserve, if it could be avoided, but it became apparent that additional troops were required. On 21 February RCT 21 of the 3d Marine Division was landed, attached to the 4th Marine Division, and placed in corps reserve. This RCT was released from corps reserve and entered the line on 23 February on the left of the 4th Marine Division zone of action.

RCT 28 (5th Marine Division) had continued the assault of Mount Suribachi area since Dog Day, and at 1035, 23 February, secured the crater and raised the national colors on its highest peak. One battalion of RCT 28 was left to clear out this area and the remainder of the regiment was placed in corps reserve. The Commanding General, V Amphibious Corps, assumed command ashore 240955. The 3d Marine Division, less RCT 3 and RCT 21, was released from Expeditionary Troops Reserve to the V Amphibious Corps and was assigned the zone of action then held by RCT 21. The 3d Marine Division, less RCT 21 and RCT 3, landed 24 February. The Commanding General, 3d Marine Division, assumed command ashore 241530.

Garrison troops began landing as soon as the beach was cleared of assault troops, and started base development work. The engineers completed a fighter strip on Airfield No. 1 on 26 February, and at 1005 two OY observation planes landed, the first United States planes to operate from Iwo Jima.

Many enemy defense installations and weapons had been destroyed, but sporadic

mortar, rocket, and artillery fire continued to fall on the beaches, on Airfield No. 1, and in the rear areas. Garrison troops in the assault echelons assisted in the development of the beaches and roads. The Antiaircraft Artillery Group provided air warning service and antiaircraft protection for the airfield and beaches.

By 26 February approximately one-half of the island was in our hands. Our lines were generally from the north edge of the East Boat Basin to Minami and northwest along the line indicated on the map for that date.

Air strikes were made daily since Dog minus Three Day on Chichi and Haha Jima [approximately 150 miles north of Iwo Jima], neutralizing enemy installations that could have seriously interfered with the landing on Iwo. Army B-24 planes made nightly harassing strikes on the same targets, further hindering the enemy activities. Several air attacks were made by the enemy on the assault shipping in the area, which effected only slight damage.

A seaplane base was established on 27 February, and on 28 February the first seaplane searches were flown. A 4,000-foot airstrip was completed on 2 March and was announced serviceable for the landing of large aircraft. Air evacuation of casualties to Guam was commenced on 3 March and continued until the completion of the operation.

The troop advances weakened the complex enemy defense system, restricted their maneuver area, and destroyed many of their mobile weapons. Enemy counterattacks were the exception rather than the rule. Never did the enemy counterattack here in force as they did in the Marianas Operation. Few enemy dead were encountered until late in the operation and little enemy material and equipment was captured. The enemy apparently cleared all areas as they withdrew to the north.

The advance to the north continued slowly under pressure of daily attacks of three divisions abreast, and on 2 March approximately two-thirds of the island was within our front lines. Airfields No. 2 and 3 were in our hands and the high ground in their vicinity gave the troops observation over the

remaining enemy-held territory. Frequent shifts of front-line battalions provided the maximum relief for personnel. The 4th Marine Division advance was deterred for eight days by most difficult terrain and a stubborn center of resistance 200 yards west of Minami in their front. The 3d Marine Division pushed forward over more favorable terrain on 28 February and made a penetration of the enemy's line of resistance in the vicinity of Motoyama. The 3d and 5th Marine Division pushed aggressively to the north for several days and by 4 March had extended their lines to the southern edge of Kita and to within 1,000 yards of the northeast coast. The troops were ordered to reorganize 5 March for an all-out assault 6 March. This assault produced only limited gains.

The final days of the assault compressed the enemy into more restricted areas. Advances were slow against intense small-arms fire from positions well located in rough terrain. Elements of the 3d Marine Division reached the beach on 9 March, and on 11 March enemy forces were restricted to the northeast end of the island and to a small pocket on the right flank of the 4th Marine Division. Steady but limited advances were made against these areas of resistance, and on 16 March the island was officially announced as secured, all organized resistance having ceased. Preparations had been made for the evacuation of assault troops on the completion of the operation and the 4th Marine Division began reembarkation 16 March.

During these last few days the assault developed into hand-to-hand conflicts; each cave and pillbox was taken by individual effort. Tanks, artillery, and naval vessels placed gunfire on targets that resisted troop assault and aided in the reduction of the enemy.

The ground operations for the capture of Iwo Jima may be described in summation as an attack on a fortified locality wherein the island and its fortifications were one and the same. It was an attack against a series of strongly organized positions, disposed in depth, and breadth, so as to be mutually supporting all the way from the beach line

through the main battle position. The defender had outposted the main defensive areas with concrete emplacements, dugouts, caves, and pillboxes. The main areas were a veritable mass of complex and intricate underground installations. The terrain by the very nature of its ruggedness, its series of ravines, escarpments, hills, and rocks, was a decided advantage to the defender and was used to the fullest degree. The siting of his weapons and his appreciation of the terrain were good.

In spite of the fact that Iwo Jima had been subjected to seventy-two days of aerial bombardment, to naval gunfire and air strikes prior to the initial landing and until the completion of the operation, and in spite of the

fact that we had artillery, air, and heavy weapons superiority, ultimate reduction of the island defenses was brought about by assault groups of foot soldiers overcoming each strongpoint in turn. This small island, limited in area, could not provide maneuver space for large bodies of troops. The island had to be reduced by direct attack to break-through, followed by local elimination of small isolated areas.

The operation will go down in history as the bloodiest in the history of the Marine Corps. A victory hard won but worth its cost in the furtherance of the war against the Empire.

Ad Astra

From a British source.

SUCH phenomena as changes in the earth's magnetism and sun spots have a direct bearing on the bombing of cities and the torpedoing of ships, for they affect the accuracy of the navigation of ships and aircraft.

Thus the work of the astronomers at the Royal Observatory is helping to place the bombs and torpedoes at the exact spots intended. For the astronomers, among other things, record the variations in the compass caused by changes in the earth's magnetism and, once every five years, complete a new set of magnetic charts of the whole world for navigators.

As the changes in the earth's magnetism cannot be predicted accurately, continuous observations are needed for the construction of reliable charts.

Experts working in close contact with the Admiralty and the Air Ministry are making a continuous photographic record of these variations. The observations, which started at the Royal Observatory in 1840, were at first made visually throughout the twenty-four hours of each day, but the introduction of photography in 1848 made this painstaking method obsolete.

Certain changes in the earth's magnetism

were found to be connected with the frequency of the appearance of sun spots. The Royal Observatory, therefore, photographs the sun every day, weather permitting, and has done so since 1873. On those days when the sun is not visible in Britain, photographs are obtained from the Observatories at the Cape of Good Hope and Kodaikamal, near Madras. Photographs of the sun are therefore usually available for every day of the year.

The work has a vital bearing on radio communication. For instance, a solar eruption or flare was found to be connected with bad radio reception, especially short wave, which sometimes suddenly fades out. It was also found that solar flares are often followed by a magnetic storm, which agitates the compass and upsets telephone and telegraph and radio transmission.

The Observatory is therefore able to warn Bomber Command when a magnetic storm is likely to interfere with navigation and radio communication. Such data is also helpful to the Army for survey work. A magnetic chart is used for gun-laying to ensure that the true bearing of the gun can be determined from its compass bearing.

Artillery with an American Army in Europe

PREPARED BY BRIGADIER GENERAL CHARLES E. HART

Artillery Officer, First U.S. Army

FOREWORD

BY COMMANDING GENERAL, FIRST U.S. ARMY

The flexibility and power of modern artillery is such that, if properly organized and coordinated, it constitutes a formidable striking power continuously available to the commander—a power, moreover, that may at any time be applied wide and deep over the battle area at the most decisive locality. This broad statement applies to all field forces embracing the combined arms, be that force large or small. This has been demonstrated time and again during the long campaigns of the First U.S. Army in Europe in 1944-45. For this reason, I commend the following article as being worthy of careful reading by senior commanders and general staff officers. Prior to joining this Command in October 1943, the author, the Artillery Officer, First U.S. Army, served as II Corps Artillery Officer throughout the campaigns in Tunisia and Sicily. General Hart's words carry the authority of several years of intensive combat experience.

/s/ Courtney H. Hodges
General, U. S. A.,
Commanding, First U.S. Army

THERE are many factors that contribute to the combat effectiveness of the artillery with a field army. Weapon for weapon, our matériel is the best in the world. Our communications are likewise superior. Further, the basic tactical and technical artillery doctrine, as developed at the Field Artillery School and improved upon in the several theaters, has everywhere proved sound in combat. However, the mere possession of fine weapons, excellent communications, and outstanding techniques for the delivery of fire are not, of themselves, a guarantee of effective and timely artillery support in battle. Of equal—if not even greater—importance are the more nebulous questions of organization and the achievement of adequate coordination within and between the artillery staff echelons at army, corps, and division level. It is with these latter factors—artillery organization for combat and artillery staff organization and action—that this article primarily concerns itself. Particular emphasis, moreover, is given to non-divisional artillery. This emphasis is deemed important because, whereas all seasoned officers were familiar with the general organization and employment of the

division (including the divisional artillery) prior to the advent of large-scale operations, most officers, artillerymen as well as others, had only very hazy ideas as regards the organization and employment of the mass of non-divisional artillery required either by a corps or by an army. This direct statement of fact reflects no criticism of any officer, organization, or institution. It merely recognizes the fact that the great administrative and training problems incident to the building of new divisions and new separate field artillery groups and battalions in the early years of the war served to monopolize the time and energy of artillerymen. Concurrent with this development, active operations in the European Theater were initiated in North Africa. Those artillerymen serving with non-divisional artillery—of which the writer was one—had to “learn their jobs by the trial and error method,” to a considerable extent.

Prior to turning to a discussion of non-divisional artillery, it is desired to point out that combat experience has shown the need for an additional medium battalion organic with the infantry division and one of the same caliber for the armored division.

This is an important consideration because the relative or "average" adequacy of the divisional artillery is the basis upon which the requirements for non-divisional artillery with an army must be calculated.

ALLOCATION AND ORGANIZATION OF AVAILABLE ARTILLERY

The artillery required by an army can be determined only after careful consideration of many interrelated factors—the army mission, the character and defensive organization of the battle area, the quantity and quality of the enemy artillery, the artillery actually available, etc. In the case of the cross-channel assault, the following First Army requirement was set up:

For each of three corps:

- 1 FA Observation Battalion
- 3 FA Group Headquarters
- 2 105-mm M2 Battalions
- 1 4.5-inch Gun Battalion
- 5 155-mm M1 Howitzer Battalions
- 2 155-mm M1 Gun Battalions
- 2 8-inch Howitzer Battalions

For each of three armored divisions:

- 1 105-mm M7 Howitzer Battalion
- 1 155-mm M12 Gun Battalion

In support of the army as a whole:

- 1 FA Brigade Headquarters
- 2 FA Group Headquarters
- 3 240-mm Howitzer Battalions
- 2 8-inch Gun Battalions

With the above amounts and types of artillery usually available to the First Army, corps consisting of two or three infantry and one armored divisions were able to alleviate the shortage of general support within the divisions by the attachment of one 155-mm M1 howitzer battalion per infantry division and one 155-mm M12 gun battalion per armored division. Also available for attachment to divisions, when required for additional reinforcement, were the light and armored battalions (M2 and M7). The re-

mainder of the non-divisional artillery with the corps was employed, depending upon the situation at hand, all or in part under corps control.

When support by the 240-mm howitzer and 8-inch gun units was required for more than one corps, the field artillery brigade consisting of all or the major portion of the heavy units listed above was given a reinforcing mission under army control. This method of employment places in the immediate grasp of the army commander a formidable amount of effective support capable of intervening over a zone of great width and depth in conformity with the situation confronting the army as a whole. For example, during the advances of First Army toward the Roer and Rhine Rivers, long-range interdiction and destruction missions, fired on the approaches to and the crossings themselves, were important deterrents to reinforcement by enemy reserves. In the operations to date the 240-mm howitzer and 8-inch gun calibers, when employed either in the attached role or under army control, have made a major contribution toward the successful advances of First Army by well planned interdiction fires on important points deep within the enemy lines, neutralization and destruction of enemy batteries and installations, and as necessary for reinforcing the fires of corps and division artillery.

Flexibility should be the criterion throughout the entire structure of the artillery with an army—not only flexibility of fires but also flexibility of organization for combat. Experience has shown that during rapidly moving situations the bulk of the non-divisional artillery should be attached to the divisions, whereas when progress is slower or the situation becomes static, attachments were usually limited to one light and one medium battalion per division. For special operations, such as the attack of the organized defenses of the Siegfried Line or a strongpoint established in a town, the attachment of a battery of 155-mm M12 guns to the attacking division has been found to be an effective employment.

It is believed that the original concept of the field artillery group was too loose, especially insofar as morale, personnel, supply, and general administration were concerned. War Department Circular 439, 14 November 1944, corrected this deficiency by making the group an administrative as well as tactical unit to which three or four battalions will normally be assigned. The receipt of WD Circular 439, however, could not and did not alter the realities of combat circumstances. In other words, it would have been neither tactically sound nor physically practicable to retain invariably the same battalions under the direct and continuous operational and/or administrative control of the parent group commander. Notwithstanding, in the First Army every effort has been made to maintain the integrity of what became known as "normal attachments" to each corps—namely, three field artillery group headquarters and headquarters batteries, five battalions 155-mm howitzers, two battalions 155-mm guns, two battalions 8-inch howitzers, and one battalion 4.5-inch howitzers. Only in unusual circumstances were any of these "normal attachments" detached from the corps; moreover, it was more or less understood that, when the tactical situation required the detachment of one or more of the "normal attachments," it was a temporary expedient only and that the detached units would be reattached at the earliest opportunity. As a result, each corps developed a marked sense of responsibility for and interest in the "normally attached" units, which made for improved morale, administration, and operational efficiency. As a result of the experience of First Army, one constructive criticism is made with regard to WD Circular 439—it is considered most regrettable that the fine old military term "regiment" was not substituted for "group" throughout the circular.

The need for organizational flexibility extends down into the non-divisional battalions themselves. Illustrative of this in the First Army experience was the re-equipment of certain 105-mm howitzer battalions with and the employment of captured enemy

weapons, 75-mm pack howitzers, British 25-pounder cannon, and 4.5-inch rocket launchers. These expedients were motivated in the first instance by a shortage of 105-mm howitzer ammunition. However, the experimentation with rockets is considered of unusual interest, in view of what may be the future role of these weapons. In November 1944, one light battalion was temporarily equipped with seventy-five 4.5-inch rocket launchers (T-27), trained in their use, and successfully employed on numerous occasions. Upon development of the improved T-66 (twenty-four tubes) 4.5-inch rocket launcher, a requirement was set up to provide one light non-divisional battalion per corps with twenty-four each of these launchers as alternate weapons for use when area-drenching fires are desired. Although much remains to be learned of the organization and employment of rockets, it is believed that there is, and will be in the future, a definite requirement for an inexpensive, easily manufactured, "next-to-expendable" weapon capable of placing a mass of fire on an area target.

The trucking activities of the artillery with the First Army during the early autumn of 1944 provide another illustration of the need for flexibility in organization. At this time the First Army was moving rapidly across France and Belgium, with staggering supply lines more of a handicap to its continued advance than enemy opposition. During this difficult period, the Army Commander called upon the artillery to help solve the gigantic supply problem. The 32d Field Artillery Brigade Commander was charged with this task and at one time had a total of eighteen immobilized battalions of field artillery reorganized temporarily into provisional truck units and engaged in hauling supplies for the army. The fact that a total of some 28,000 tons were moved over 32,000 miles of Western Europe, gives a measure of the assistance rendered. Meanwhile, a sizable proportion of the artillery with each of the several corps was bolstering corps supply agencies to the maximum.

STAFF ORGANIZATION FOR THE COORDINATION AND CONTROL OF ARTILLERY

Command vs Artillery (i.e., Coordination) Channels.—A realistic appreciation of, distinction between, and employment of artillery channels of communication, coordination, and control, as distinguished from command channels, is essential to the effective control and employment of the artillery with an army. This is a delicate subject—that is, the heavy black line down the center of the organization chart, which theoretically is the sole link from commander to commander. This writer disagrees with this concept and feels that this difficult but extremely important question has been inadequately treated both in our field service regulations and in the general and special service schools. This is a stubborn problem and one that turns about the personalities of the commanders and the staff officers concerned. The solution can be evolved within a given headquarters only by acknowledging the existence of the problem, by frank discussion, and by a considerable amount of trial-and-error experimentation in day-to-day operation.

The concept of the general staff is sound, both in theory and in actual practice. This discussion in no way challenges that principle. However, it must be recognized that the efficient and timely coordination and control of the great mass of artillery with an army requires that there be strong artillery channels up and down through the army alongside the command channels. The artillery channels do not bear the "move the such-and-such battalion to so-and-so not later than noon tomorrow" type of communication. Rather, the following sequence of events might more properly take place. The army artillery officer determines that a 155-mm howitzer battalion should be shifted from one corps to another. Time permitting, he would call the corps artillery commander who is to lose the battalion and say: "I feel that so-and-so needs another medium battalion. I have not talked to G-3 as yet but I am confident that he will concur. Let me have your nomination of the required

type, by such-and-such a time; you will receive the necessary confirmatory orders through G-3 channels." The corps artillery commander might agree without protest, and then advise the corps G-3 of the army's intentions. In such a case, the problem is soon solved. G-3 concurrence is obtained, orders are published, the army and corps troop movement sections take over, and the unit moves to the other corps. However, the corps artillery commander may feel that the release of the battalion would be unsound from the corps viewpoint. In this case, the corps artillery commander would unquestionably register a protest at the contemplated shift, inform the corps G-3 of the army's intentions, and recommend that the corps G-3 interpose an objection to the army G-3. If the issue were of sufficient importance, such a case might be brought to the attention of the army and/or corps chiefs of staff, or even the commanders themselves.

The foregoing illustration is of the most ordinary, run-of-the-mill character, but it illustrates the following fundamental aspects of the problem under discussion:

a. The whole transaction between the army artillery officer and corps artillery commander related to *command* matters.

b. For all intents and purposes, the army artillery officer made a *command* decision, confident in his own mind that the army G-3 (or chief of staff or army commander, if need be) would support his recommendation.

c. For all intents and purposes, the corps artillery commander made a *command* decision, confident in his own mind that the corps G-3 (or chief of staff or corps commander, if need be) would support his recommendation that the corps would or could not spare the unit concerned.

d. The corps artillery commander obtained the whole picture at the very outset direct from his army artillery officer, thereby insuring the maximum possible time for prior planning both at corps and by the battalion concerned.

e. Mutual confidence and understanding within and between the two staffs—so vital

to operational efficiency—has been furthered.

f. The prerogatives and functions of the general staff have not been infringed upon. By contrast, they have been strengthened by smooth-functioning special staff action.

There are strong channels of communication, coordination, and control within the artillery with the First Army, which are busy many long hours each day handling the myriad of operational, personnel, supply, intelligence, and other categories of business continually confronting the army artillery officer. Although not a commander, he is involved in command matters many times each day. It is believed that it must ever be so if the artillery with an army is to render the powerful and continuous support of which it is capable.

Artillery Coordination with the Air Forces.

—Just as there is no adequate guidance "in the book" concerning the command vs artillery channel relationship, so it is with the artillery-air relationship. Anticipating the necessity for a close working relationship between the artillery and the air forces, the First Army Artillery Officer sought an understanding early in the planning stage for the cross-channel operation, with the Commanding General, IX Tactical Air Command [TAC], which was to support the First Army. The Commanding General, IX TAC, returned this urge for a solid understanding with compound interest. The result was a splendid spirit of mutual cooperation. To insure that full advantage was always taken of the opportunities for artillery-air cooperation, one officer from the Artillery Section (see Organization Chart) known as Arty (Air) performed his duty at the Joint Air-Ground Operations Center, IX TAC. This officer was concerned primarily with the coordination of counterflak artillery fires and the adjustment of artillery fire by high performance aircraft. Another officer in the Artillery Section devoted a major portion of his time to aerial photography with particular attention to the development and provision for gridded oblique photography for artillery use. This required close coordination with one of the Tactical Recon-

naissance Groups of the IX TAC. Being work of a pioneer character, a brief discussion of each of these three expedients is deemed appropriate.

The employment of high performance aircraft to adjust artillery fire (short title, Arty/R) was developed in order to provide observed fires to the maximum range of field artillery weapons. Prior to the Continental assault, pilots were trained by classroom instruction, special service practice periods, and participation in large-scale firing maneuvers. Major artillery headquarters were issued Air Force VHF radio equipment in order that they might communicate with the aircraft in flight. A member of the Army Artillery Section was attached to the Headquarters of the Tactical Air Command for the purpose of processing requests for Arty/R missions. As the pilots' ability increased with experience, effectiveness of artillery fire increased materially. Pilots had little difficulty in handling all types of artillery fires. They proved particularly adept in firing for destruction on pinpoint targets—probably the most difficult type of artillery fire. Artillery prisoners of war have stated that they were ordered not to fire when American fighter type aircraft were in the near vicinity for fear of the retaliatory fire which the aircraft might bring to bear upon them. The soundness of this operational procedure is testified to by a total of 419 targets successfully attacked over a period of nine months.

Counterflak artillery fire is, as the name implies, fire delivered for the sole purpose of neutralizing the enemy anti-aircraft artillery. Initially, these fires were conceived only for the protection of large "carpet" bombings but were later extended to the point that practically all close-in air activity on the army front was furnished this protection. This counterflak support was extremely successful. The Air Force has been able to carry out low and medium altitude attacks over areas so heavily defended by flak as to preclude the attack were it not for carefully planned counterflak fires. The Air Force has rendered enthusiastic cooperation in this development.

The purpose of gridded oblique photographs was to provide a simple and rapid method of obtaining initial data that would result in accurate massed fires without the loss of surprise attendant to difficult and time-consuming adjustments. Prior to the assault, schools were held for air force, engineer, and field artillery personnel in the preparation, processing, and use of gridded oblique photographs. It was found that on many occasions visibility was such as to prevent high-altitude vertical photography but not so restrictive as to prevent the taking of low obliques. Not only has this photography been used by field artillery in preparation of initial firing data but it has proved valuable for photo interpretation, aerial reconnaissance, and has become much in demand by the infantry.

The Army Artillery Section.—A newly appointed army artillery officer will find no adequate guidance in official publications concerning his functions. This is not necessarily unfortunate. An army is a very great organization, with territorial, tactical, and administrative functions. Further, our armies vary widely in size, composition, and the over-all character of their assigned missions. In view of this, it is doubtful whether a detailed listing of the functions and duties of an army artillery officer would serve any useful purpose. Rather, it is felt that an army artillery officer should, within the latitude allowed him by his commander, mold his section to fit the army mission. Regardless of all else, he will not go wrong if he sets the following as his task:

- a. To advise the commander concerning the employment of the artillery with the army.
- b. To anticipate difficulty in the implementation of decisions taken, and to help the troops solve the resultant problems.

As is indicated by the italics, the second function is of overriding importance. It should be burned indelibly into the consciousness of every officer and enlisted man in an army artillery section.

The function of advising the commander

is very broad in its scope and involves a good deal more than the preparation of artillery annexes to field orders and the army artillery officer's personal relationship to his commander. Since an army commander is continually gathering advice and counsel from his general and special staff officers, it is of first importance that the army artillery officer maintain *daily personal liaison* with certain people. These should include the army commander himself, the chief of staff, G-3, G-2, and G-4. This is an essential part of the artillery officer's function of "advising the commander," and serves two interrelated purposes: first, to keep the army artillery officer continuously aware of the plans being evolved by these critically important people; and second, to keep these same people "artillery minded." Despite the vital part that artillery has played in all military operations the world over, it is a curious fact that, unless commanders and general staff officers are first made artillery minded" and kept so thereafter, these officers are apt to forget the artillery in the pressure of other business. This tendency is entirely unintentional but nevertheless true in many instances.

A fundamental and inherent characteristic of warfare, and one sometimes not adequately recognized, is the fact that in battle the most carefully prepared plans do not always work out as planned. This will inevitably be the case until some distant day when machines entirely replace human beings on the battlefield. The point is that an army artillery officer, like any other staff officer, must plan for trouble, look for trouble, and do something right now about the trouble he finds. This is the foundation on which mutual confidence between the troops and the staff is built. There are few things more important in the art of warfare.

A functional chart showing the organization of the First Army Artillery Section is given on page 35.

The Corps Artillery Commander.—The corps artillery commander functions in a dual role, both as commander and staff officer. He commands the corps artillery, both

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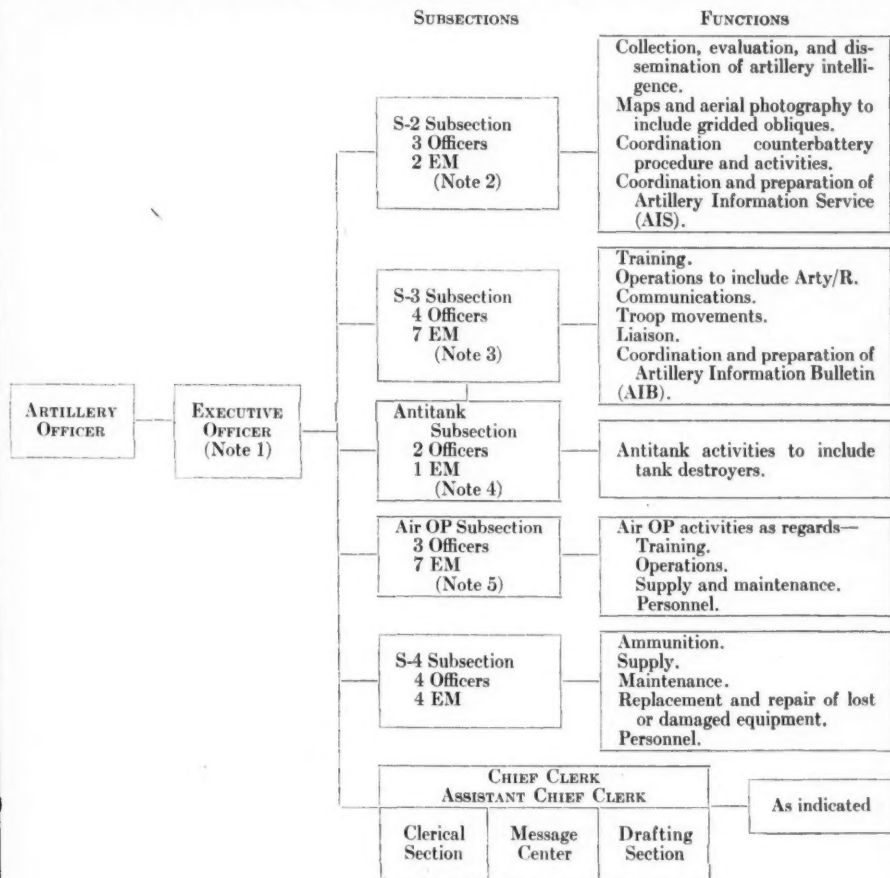
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ORGANIZATION CHART

FIRST ARMY ARTILLERY SECTION

T/O 200-1 (1 July 42) as changed by Change No. 3, 30 March 44, authorizes the Army Artillery Section a total of 18 officers, 1 warrant officer, and 40 enlisted men. In addition to the above, 2 officers and 4 enlisted men were allocated the Artillery Section by this Headquarters upon receipt of an allotment of grades and ratings authorized by Headquarters, European Theater of Operations. However, after eleven months in combat the First Army Artillery Officer feels that 18 officers, 1 warrant officer, and 44 enlisted men are adequate.



EXPLANATORY NOTES

- (1) Artillery Officer deals directly with chiefs of subsections, as required.
- (2) One Assistant S-2 on duty in Office of Assistant Chief of Staff, G-2.
- (3) One Assistant S-3 is Communications Officer. Four EM are radio operators in Army Arty Officers' Radio Net with station at APIS.
- (4) Although administratively under S-3, the ATO generally deals directly with the Artillery Officer.
- (5) Two officers perform duties at the 23d MR&R Squadron.

organic and attached. As a staff officer, he bears the same relationship to the corps commander that the army artillery officer does to the army commander. This dual role is a very heavy load. In fact, it appears to be the opinion of most corps artillery commanders, who have functioned as such in combat, that the only perfect solution would be to have two individuals, both general officers, filling the positions of corps artillery officer and of corps artillery commander. However, since such a solution is unobtainable under the existing tables of organization, the following organization or close approximation thereto has been effectively employed by most combat-experienced corps:

Operating in and out of Corps Command Post:

Corps Artillery Commander
Executive (listed in T/O as Ass't Corps Artillery Officer)
Ass't S-2 (with Corps G-2)
Ass't S-3
S-4
Artillery Air Officer
Aide
Ass't Antitank Officer } additions by
Antitank Officer } Theater au-
thorization.

7 Enlisted men—clerks and draftsmen
2 Enlisted men—antitank subsection—
additions by Theater authorization.

Operating in and out of the Corps Artillery FDC (Fire-Direction Center):

Deputy Corps Artillery Commander
(listed in T/O as Executive)
S-2
S-3
Ass't S-4

Plus 12 officers—operations; to include counterbattery group, communications, field artillery liaison pilots, and aide for miscellaneous assignments.

1 Warrant Officer } battery headquar-
86 Enlisted men } ters, operations
including counter-
battery, commu-
nications, and

maintenance, to include Air Observation Post requirements.

The artillery brigadier general, although still the corps artillery commander, will have to delegate a number of the duties in connection with his command responsibilities to the deputy commander (the colonel at the corps FDC). In general, the duties and responsibilities of the artillery section at the corps command post are essentially the same but on a reduced scale as those of the artillery section of an army headquarters. It is to be emphasized that the responsibilities of the corps artillery commander and his staff extend to all of the artillery with the corps, both divisional and non-divisional.

As it is true in army so it is in corps that for smooth and efficient operation, together with effective accomplishment of mission, it is imperative that the artillery section at the corps command post work in the closest harmony with all members of the corps general and special staff sections. The corps artillery commander, or in his absence the executive (the colonel at the corps command post), should be readily available to advise the corps commander. The assistant S-2 should operate in the office of the corps G-2; the assistant S-3, although normally not in the office of the corps G-3, should maintain the closest liaison with that section. S-4 has a similar responsibility with respect to the corps G-4 and the supply services, namely ordnance, quartermaster, signal, and engineer.

The tactical grouping of non-divisional artillery battalions with the corps is accomplished through field artillery groups, certain aspects of which have already been discussed.

The next major echelon with which most officers are familiar is division artillery. Like the corps artillery commander, the division artillery commander has a dual role. He commands the division artillery, both organic and attached, and is the artillery officer on the staff of the division commander, in which capacity he is the assistant and adviser to

the division commander on all artillery matters. The staff principles and functions appropriate to the size of the unit apply to the division artillery staff. The administrative and supply functions of the staff are mostly supervisory and informative, subordinate units normally conducting all administrative and supply matters directly with the division.

Lastly, when army retains artillery units under its control, a brigade headquarters is the appropriate unit to control the units so employed. The composition, organization, and functions of the brigade staff are similar to those of a division artillery staff.

CONCLUSION

The fact that American artillery is accredited with an outstanding performance in combat is not questioned. Artillerymen of all ranks will testify to the soundness of doctrine as written in our texts and taught at the Field Artillery School. However, these statements should not be construed to mean that combat lessons have not been learned and put to profitable use. This has most certainly been the case, and within First Army the publication of the Artillery Information Service Memoranda (AIS) has provided an effective means for the collection, evaluation, and dissemination of this helpful information.

As previously mentioned, the writer of this article has had an opportunity for nearly three years to observe and deal with

the varied problems of both divisional and non-divisional artillery in combat. Based upon this experience it is thought fitting to re-emphasize a statement made in the earlier portion of this article: "Combat experience has shown the need for an additional medium battalion organic with the infantry division and of the same caliber for the armored division." There has seldom been an instance during our operations in North Africa, Sicily, and on the Continent when both types of divisions have not required attachments to supplement their organic general support. If this situation has proved necessary during those major operations, then it would appear desirable to incorporate the additional unit organically into the division.

In conclusion, however, it should be pointed out that the field artillery with an army which has been successful in combat performs its mission effectively by the well coordinated, accurate, and prompt delivery of supporting fire regardless of whether it be organic, attached, or reinforcing. This we have achieved in First Army through an organization carefully integrated up and down through all echelons, together with a spirit on the part of all artillerymen to provide continuous support to the limit of their capabilities. Let it continue to be music to the Doughboy's ears when he hears the time honored artillery phrase, "ON THE WAY."

The experience of more than three years of war has demonstrated the soundness of our concept of a "balanced fleet," in which aircraft and ships work together as a coordinated team. There has been no dispute as to "carriers versus battle-ships." Aircraft can do things which ships cannot do. Ships can do some things which aircraft cannot do. Working together, surface ships, submarines, and aircraft supplement each other so that the strength of the unified team is greater than the sum of the parts.

—From the report of Fleet Admiral Ernest J. King to the Secretary of the Navy covering combat operations from 1 March 1944 to 1 March 1945.

Supply by Air

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THIS war has proved one method of supply; that new method is supply by air transports.

In past wars we have used the horse or mule and wagon, the river barge, the railroad train, and to some extent the motor truck.

Between the two great wars the automotive industry built bigger and better trucks. The army adopted many of these designs and put them to work. We find in every theater today vast numbers of supply trucks carrying the necessary fighting supplies to the men at the battlefield. One of the outstanding feats of motor transport was the "Red Ball Express" used in the European Theater of Operations during the last half of 1944.

In spite of this great and speedy means of bringing supplies into battle areas, the airplane has come to the fore as an important carrier of all classes of supply. Every day, reports from the theaters bring out clearly that the successful results of operations have been decided by the speed, flexibility, and mobility of air transport.

Which Air Force agency is charged with the carrying of supplies in the combat theaters? The answer to this question can be found by a quick glance at the mission of the Troop Carrier Command. We find that Troop Carrier is assigned a primary and a secondary mission. The primary mission of transporting airborne troops into combat and of resupplying these troops will not interest us at this time. However, the secondary mission of Troop Carrier will. This secondary mission calls for (a) emergency supply and evacuation, (b) ferrying of troops and supplies, and (c) routine ferrying of mail, personnel, and supplies.

Here the Army has an agency charged with a combat zone supply mission and, of course, being charged with supply, it will be trained and equipped to perform this type mission.

Troop Carrier will not only provide the trained crews and the airplanes equipped for these missions but will work out the route planning, load planning, and also provide

personnel to supplement the labor needed to package supplies. In addition to what the Troop Carrier can furnish there is a very special unit available to the Troop Carrier through the Air Force Service Commands. These units are called Air Cargo Resupply Organizations. These Air Cargo Resupply Organizations can rig chutes, package supplies, load supplies, and kick them out the door of the plane if supply is by parachute, or unload them if the craft lands on an available strip.

Members of the Ground Forces may say—"These planes are not property of the Ground Forces, so how can we expect to get any benefit from them?" We can find the answer to this question in War Department circulars which state that Troop Carrier aviation is a theater of operations force and as such is controlled by the highest agency in the theater with jurisdiction over all land, sea, and air forces. From this statement the commanding general of a theater of operations can control the Troop Carrier aviation in his theater. If these transport aircraft are needed for supply work, the commanding general can direct that their efforts be given to that task. The result should be that all agencies receive the benefit of air-transported supply.

In some theaters the terrain is such that the main lines of communications run parallel to instead of perpendicular to the combat lines. Here it is vital that air-transported supplies be plentiful. In other theaters, where islands are separated by large water areas, it is necessary to call on aircraft for delivery of supplies. In the European Theater of Operations we find that because on the fast armored drives, the demolition to ground means of supply, and the vastness of operation many critical periods developed where success and failure hung in the balance. The balancing factor was air supply.

We have discussed the importance of this type supply, how it is controlled, and why it is necessary. Let us take a look at the

methods available to air for carrying out these missions.

AIR LANDING

The first and the *best* method of supply by air is to *airland* the supplies. This, of course, means that a landing strip must be available near the using agency. When supplies are airlanded it means that on arrival all packages will be intact. There is very little loss and breakage and the full payload of the type airplane used can be utilized. This method should always be used when possible.

GLIDER LANDING

A second method, and a very good one, is to *glider land* the supplies. The reason this type transportation is not frequently used is because of the scarcity and the expense of gliders. However, when it is carried out the results are very much like the first method mentioned. We need a strip or an open field with a fairly smooth surface on which to land the glider. We can utilize the full payload of the glider and slight loss and breakage is encountered. I reemphasize that gliders must be available.

PARACHUTE LANDING

Another method used frequently, although far from the best, is to *parachute land* the supplies. This method is used for airborne troops, isolated waves, front-line troops, and units in mountainous areas. In order to accomplish supply by parachute much work must be done and plenty of equipment must be available.

For every supply package, one or two chutes must be available and rigged. Each supply bundle is limited in size and weight, containers must be available, and personnel trained in rigging chutes, packaging supplies, and loading the planes are essential. In addition to all these limiting factors, the full payload of the airplane cannot always be used. If the mission happens to be a "one pass" affair, only four to ten packages can be ejected fast enough to get the supplies out at the right instant. If more are "kicked out" of the ship, they will in all

probability fall into the enemy's hands. Four packages can be ejected from the side door at one time, while six can be released from pararracks on the under side of the ship, at the same instant.

Loss and breakage is extremely high when supplies are parachuted. The bundles are often scattered and cannot be gathered up by the men on the ground, as enemy fire may cover the spot where the bundle landed.

Where more than one pass can be made with a degree of safety, accuracy of dropping is increased. This will not prevent breakage, however.

It has been found that bomber-type planes capable of dropping twenty or more packages by the "salvo" method can be used to great advantage. This type plane is not always available and will only be used in an emergency.

Because initial resupply for airborne units is usually accomplished by parachute, the Air Forces have developed many types of packaging containers to insure a minimum of breakage. These are expensive and are necessary in large quantities for this type resupply. When any force is supplied by chutes, these containers should be used. While parachute landing of supplies is not desirable, combat conditions make its use imperative.

FREE DROPPING

A fourth and last resort method of supply is that of *free dropping* the items. "Last resort" is a very accurate description. Loss and breakage is almost prohibitive. Very little time should be spent discussing this method. It has been mentioned because it is a possibility.

Having this brief picture of the different methods of aerial resupply we might consider at this time how a theater might organize their air transport system so that units needing air supply can ask for and receive it.

The highest headquarters in the theater will, in all probability, set up their air supply system to get the results it needs for success. The degree of organization needed in the theater air supply system can be jud-

ged accurately by this headquarters and steps can be taken to insure that each force in the theater can benefit by these air-transported supplies.

The first and most important step is to establish centralized control by setting up a Combined Air Transport Command Post, Operations Room, or Chief Dispatchers Office.

Much of the following information should be available in this office at all times:

1. A status board showing the number and location of all the cargo aircraft available.
2. The depots where all classes of supply are available. The proximity of these depots to airfields or their location at airfields. (Engineers could build a strip at or near such depots, and it would save time and labor to have some Troop Carrier units stationed on these depot-air strip combinations.)
3. The condition of strips near the using units.
4. New strips being built near using units.
5. The amount of additional personnel available to aid in loading and unloading supplies.
6. The signal system for each day's code letters and signals.

With this information on hand, the men of the air supply control room, consisting of Air, Service, Ground, and Signal representatives, will be able to direct the entire air supply operation.

A board might be set up in this supply control headquarters in order that proper precedence be given to supplies for certain units, just as a message is given a rated precedence. Proper priority will aid each subordinate unit in obtaining necessary items of supply.

The using units should filter their requests direct through their higher headquarters and requisitions should come to this control room from army or tactical air force. Direct requests from regiment or division will not reach the central control room.

Requisitions should contain the necessary operational information for setting up the

aircraft for the mission and an itemized list of supplies required by the user.

An adequate signal system will help to keep high-priority requests from being stymied en route.

The men at the central control room on receiving a request will get the mission set up. Immediate notification is sent to a depot to have the number and quantity of supplies available at a given airdrome at a given time. At the same time a Troop Carrier unit will receive instructions to have the proper number of aircraft at this given airdrome at the time loading is to begin. Troop Carrier will also receive information on when, where, and how to deliver these supplies. Also identification procedures. The using unit will receive information as to when the material will arrive and how they will signal for it if a parachute drop is necessary.

It would be a great help if Troop Carrier units were permanently assigned to airdromes located at these supply depots.

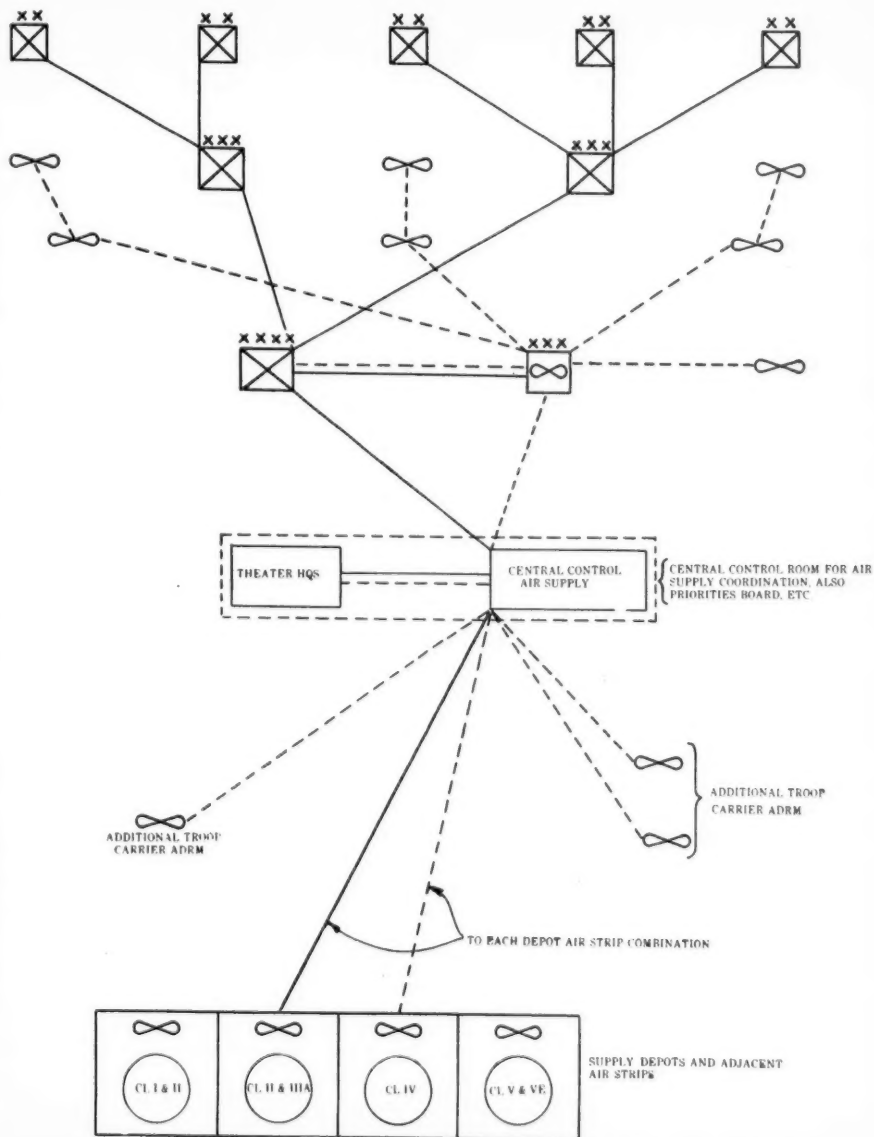
Additional information must go to the SOS to replenish depot stocks and also to higher headquarters notifying them that the supply has been made.

In order to keep this system up to the minute, air strips must be made available as close to the combat units as is possible. Engineers should constantly prepare these for operation. A forward control party acting as an advance command post should handle air traffic in the vicinity of the forward airdrome, traffic on the ground, the unloading of supplies, the loading of wounded, the movement of trucks and ambulances on the ground in conjunction with the movement of the aircraft, and should provide liaison between the Air Force and the using agency.

In supplying air units this is much simpler as the air unit will have regular airdrome facilities.

There are many situations which will have to be handled correctly. For instance, transport crews ordered to report to a given airdrome should be able to begin loading on arrival. There are instances when a twenty-four hour wait was not uncommon. Another

FRONT LINES



SUGGESTED PLAN FOR AIR SUPPLY COMMUNICATION NET

trouble-causing condition is the fact that as fast as forward combat air strips are built or captured the fighters of a Tactical Air Command move in. This is necessary to get attack aircraft up front to hit targets in the battle area. Proper coordination must exist between the theater air transport control and these fighter units in order to get the maximum use out of these advance airdromes.

Other problems such as policies to augment aerial lifts of other nations' transports may be needed. Strategic and tactical conditions of the war, along with weather, will cause many last-minute changes in cargo flights. To smooth out and solve these problems, close liaison between the central control body and theater headquarters should be maintained.

Supply by air differs in each theater as

the tactical situation differs. I have not yet touched on all-out air supply missions such as the operation of the IX Troop Carrier Command during the December 1944 German breakthrough. The supply of General Patton's tanks by flying gasoline forward is an outstanding example of what can be done by air-transported supply.

There is no reason why a theater should not be able to develop their system of supply by air to a point where the results will be extremely high. In one theater an air force is assigned supply as its primary mission. In performing that mission the vital statistics from that air force show the results to be tremendous. Supply by air cannot be overlooked in any theater. A glance at the results of actions in China show a solid dependency on air-transported supply.

Japanese Manpower Pool in China

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A rarely-discussed source of Japanese manpower is the Chinese male civilian population in Jap-occupied territory. In an effort to maintain their divisions at maximum strength, the invaders of the Chinese mainland initiated their program of compulsory "selective service" in 1942.

Upon reaching the age of eighteen, all male Chinese must register for military training. Failure to register or to report for duty when summoned brings severe penalties upon the family of the offender.

In order to render the enforced duty more attractive, the Japanese offer officer training to high school graduates. Selected candidates study at the Peiping Officer Candidate School under the direction of a puppet officer, General Tu See-Juin.

The length of the training course depends upon the branch of service in which the aspirant is to be commissioned. To become the equivalent of a second lieutenant in the infantry, a Chinese soldier must complete

three years of training. For commissioning as a Quartermaster officer, two years of training are required. Candidates for commissions as legal officers must hold law degrees; in addition, they must complete a one-year course in the Japanese military legal school. Military police officers are required to finish three years of infantry training as a prerequisite to the one-year MP course.

It is not clear that the Japanese are deriving substantial benefits from their impressment program. Many Chinese are said to desert and join guerrilla forces in the mountains outside of Peiping.

In general, there is friction between the "selected" troops and the native Japanese soldiers. However, the former appear to have no alternative but to fight alongside the invaders. Failure to do so often causes unpleasant reciprocal action to be taken against the soldiers' relatives. The Japanese have burned houses and slaughtered families as examples for incipient Chinese recalcitrants.

Military Aspects of the Psychopathic Personality to Aid Non-Medical Officers

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WHILE the diagnosis of the psychopathic personality* must be made by the medical officer, preferably by the neuropsychiatrist when available, the military system of channeling such cases also requires services of non-medical officers in contributing to final disposition. In order for officers, other than medical, to contribute properly in their duties requiring contact with such cases, it is necessary to have a general understanding of the psychopath, management and disposition. It is the purpose of this composition to contribute data concerning psychopathic personalities that may serve for practical military purposes, to give the non-medical officer, in as simple terms as possible, information that will increase his understanding and thereby allow integrated collaboration with the medical officers. This will increase total military efficiency in handling such cases, since by common understanding unity in purpose can be obtained. These data will be of special concern for officers serving or who will be asked to serve on Section VIII boards, members of Judge Advocate offices, commanding officers, etc. Many such officers have repeatedly requested simplification of the subject for their practical needs in their duties.

Definition.—A psychopathic personality is a chronic social maladjustment that expresses itself *outwardly by actions* that neither conform to nor that are acceptable to society, be it in civilian or military spheres. Such an individual realizes no law but his own immediate desires and needs, fails to learn from experience, and has little to no interest in adjusting his actions to conform to the social code. He repeatedly breaks rules to gain short-time pleasures with no regard of others or his obligations. His behavior in action is usually antisocial, hostile, or

irrational in type. Abnormal sexual desires and practices such as homosexuality may be associated in some cases. Totally, the psychopath, by his antisocial acts, will interfere with group purpose and efficiency and cause those about him to be much troubled and disturbed. Their acts are classified under "bad habits and traits."

The psychopath is not insane nor mentally deranged. He knows the difference between right and wrong and can adhere to the right if he so desires. He therefore is responsible for his behavior and actions.

In my experience to date, many officers have asked questions on this subject. By reviewing the most common question and by giving direct answers, further data will be presented.

1. Q. How do these individuals indicate their undesirable type of behavior?

A. By their *actions* that are *visible* and can be recognized by anyone.

In the military, such acts are repeated AWOL's, drunkenness, difficulty in getting along with others, wearing unauthorized insignias, forging checks or passes, demanding repeated special privileges, general carelessness, poor response to discipline, chronic sick call riders, unusual lying, malingering ("goldbrick"), abnormal sex interests and practices, emotional outbursts of temper and excitability usually associated with improper verbal utterances, brooding, suicidal threats or attempts, justification of his behavior by always blaming others, drug addiction, lack of interest in correction as evidenced by continued misbehavior, weak effort in adjusting or learning from past experiences, and a satisfied acceptance of his own way of doing things.

With rare exception, when such an individual is questioned about his civilian behavior, it will be found he has had his behavior disorder dating from early childhood or

*"Psychopathic personality" means the same as "constitutional psychopathic state."

manifested from early youth. The most common data include frequent truancy in grade school, problem with teachers and parents, difficulty in getting along with others, frequent alcoholism, poor civilian work record rarely holding jobs more than a few months, no goal in life, past abnormal sexual practices, outbursts of temper with destructive acts, civilian arrests, stubbornness, insisting on his way, disregarding his obligations to others, irresponsibility, etc.

It is thus seen that the actions of such individuals are characterized by *chronic repetition* of behavior that becomes serious enough to cause severe friction with society or conflict with the law and that those actions continue with an abnormal frequency without any adjustment to themselves or to the demands of the social environment.

It must not be concluded from what has been said that all individuals with delinquent or antisocial behavior, even those guilty of repeated offenses, will prove to be psychopathic personalities. Defects in character may be due to certain experiences that have produced special attitudes, to the cultural environment in which one has lived, and to other factors. Therefore, psychiatric study by the medical officer is necessary to aid you, for certain deviations in the strivings, emotional, and character aspects of the individual personality must be found in order to arrive at a conclusion of psychopathic personality.

2. Q. What are the sources that can aid in the detection of the psychopathic personality?

A. The line officer, stockade, Judge Advocate, sick call clinic, and any other officer in charge of men.

3. Q. What suggestions can be offered to the non-medical officer as to when a case should be sent to the psychiatrist in order to avoid unnecessary consultations?

A. Every case of homosexuality in act and every case that has committed any act serious enough to begin General Court-Martial proceedings should have an appointment arranged with the neuropsychiatrist as soon as possible.

As to other less serious offenses, the non-medical officer should interview his enlisted man personally and make every effort to correct him in future behavior. An enlisted man with misbehavior that is not deep rooted in his personality can frequently be adjusted within his own squadron if the commanding officer shows personal interest in helping the individual.

If the enlisted man's misbehavior does not improve and attains a character of disturbing repetition in his acts, then such an individual should be sent for psychiatric opinion and recommendations. An itemized report of improper actions, prepared by the commanding officer, should accompany the enlisted man at examination time.

From such a group presented for psychiatric evaluation, some will be found to have psychopathic personalities. Those not found to be so will be classified accordingly, depending on psychiatric evaluation and diagnosis. The psychiatrist will try to aid you in each problem with recommendations and disposition.

4. Q. Why is it important to detect such cases?

A. Most of these individuals are absolute military misfits and are not desired by the military. It is known, and has been proved in every army of past wars, that the psychopath, because of his chronic bad habits and traits, is not desirable in military service because he impairs morale and efficiency of others and may also be of great danger in important situations. While the psychopath may have little to no effect on stable individuals, his repeated misbehavior is bound to infect unfavorably those individuals who are borderline or mildly unstable persons. Furthermore, the presence of two or more psychopaths in a group can cause serious disruption of purpose of the squadron. Ask those commanding officers who have such "bad boys" and you will need no convincing. The trouble caused by the psychopath far outweighs his duty contribution during his brief periods of proper behavior.

5. Q. Is every psychopath, regardless of degree, a military misfit?

A. No. It is known that some psychopaths, particularly of the milder types, have attained satisfactory war records. The war may have a good effect on a small number. However, it must be stressed that the military must not be employed to act as an educational or reform institution for those psychopaths who are unreliable and a detriment to the morale and efficiency of their organizations.

6. Q. Does punishment significantly improve the psychopath?

A. Usually not. However, when he commits acts calling for punishment, it must be given, not to improve him, but rather to discourage him from many added acts and also to have a favorable effect on the morale and efficiency of the squadron. It is not uncommon to hear commanding officers state, "A kick in the pants will make a man of the chronic rule-breaker." Such ideas are entertained when the commanding officer is in a state of emotional disturbance. We must control our personal emotions and make decisions in coolness.

7. Q. Does homosexuality or other types of sexual perversion always indicate a psychopathic personality?

A. No. Sexual perversion may be a symptom of psychoneurosis, psychopathic personality, psychosis, or of lesser personal maladjustments.

8. Q. Is there any difference in type of discharge or in interpretation in cases of practiced abnormal sexuality, (homosexuality, etc.) since much can be associated with the various diagnoses mentioned above?

A. Yes. All homosexuality is given a blue discharge (without honor) regardless of the underlying psychiatric diagnosis *except in cases of psychosis* (insanity). The reason for this is that the psychotic is the only one who cannot differentiate right from wrong and does not have the mental ability to adhere to the right. The military law coincides with the civilian law in judging these cases. It is the violation of the social

code *in act and not in thought* that is punishable.

9. Q. If a soldier is known to be a homosexual but is able to restrain himself in act while in the military, is he eligible for discharge?

A. No. As was mentioned above, a man is not punished for his desires or thoughts, but rather for his *unrestrained acts*. Therefore, provided the soldier refrains from abnormal sexual practices and conforms to the military code in all his behavior, he is retained in service.

10. Q. If a psychopath has Eneuresis (bed wetting), is he entitled to an honorable discharge? (Section VIII) AR 615-369.

A. If he has manifested misconduct or bad habits and traits while in the military, he still is a candidate for discharge without honor regardless of the chronic bed wetting.

11. Q. Does psychopathic personality indicate insanity?

A. No. He knows the difference between right and wrong, and has the ability to adhere to the right if he so desires. This is important to remember since many officers have loosely interpreted any diagnostic term with the word "psychopath" to mean "nuts," "crazy," "insane," etc. The diagnostic expression of psychopathic personality (constitutional psychopathic state) *definitely* indicates no insanity.

12. Q. Do some psychopaths merge into insanity? (Psychosis)

A. Yes. However, when there is no progression into insanity, the case must be viewed as not insane.

13. Q. Is there any medical treatment or any rehabilitation measure that would correct the psychopath?

A. Generally, no. The psychopath, with few exceptions, does not respond to medical care in his adult stage. He himself neither seeks medical care nor correction, for he is perfectly contented with his type of behavior that serves his own inner needs. Only in childhood, before his behavior becomes fixed, has medical management been success-

ful in many, but not all, cases. In that early stage, the drives of the individual and the parent's guidance, etc., can be corrected.

As to rehabilitation in the military, the psychopath is not a candidate, for as a rule, he does not respond. The reasons given above also apply for rehabilitation failure. Thus again it is evident why the principal aim with the psychopath is separation from the military service, since his retention would only serve to contribute in a deleterious way by impairing morale and efficiency of others.

14. Q. What type of discharge does a psychopathic personality get and why?

A. He gets a blue discharge (without honor) according to AR 615-368 (Section VIII). Such a discharge is given because of chronic "bad habits and traits or misconduct."

It may be surprising for you to know that misinterpretations have given many such cases honorable discharges (white). Lack of understanding has been the cause of error by non-medical officers and by some medical officers. It is obvious that an individual who knows right from wrong should not be rewarded for bad conduct by an honorable discharge. It is also obvious that he neither deserves it nor that such a practice would have a favorable effect on others. *The military does not reward misconduct any more than civilian law or you yourself do.*

15. Q. What has been the new revision of Section VIII of AR 615-360?

A. There has been no change in content. Section VIII, AR 615-360 covered (a) cases of inaptness or non-adaptability by white discharge (with honor) and (b) bad habits and traits or misconduct by blue (without honor). Beginning 20 July 1944, Section VIII of AR 615-360 has been subdivided into AR 615-368 for cases with "bad habits and traits of misconduct" calling for a discharge without honor (blue) and AR 615-369 for "inaptness, non-adaptability, or unexplained enuresis" calling for honorable discharge (white) *provided* there is no associated misconduct. By this new AR designation, there is a clean-cut distinction

between the types of discharge, rather than having two different types of discharge designated by the same AR section as formerly.

16. Q. What are some simple comparative differences of psychopathic personality, psychoneurosis, and psychosis that will allow the non-medical officer to have further understanding of the psychopath?

A. The psychopath (or known to you as the "chronic misbehavior problem") has no symptoms and does not suffer himself, but causes those about him to suffer by his acts. The psychoneurosis (or known to you as "excessive nervousness") does not cause others to suffer, but rather suffers within himself by such symptoms as headaches, pains in the body, weakness, fears, shaky sensations, disturbing heart action, etc. The neurotic must frequently describe his inner sufferings to be recognized and seeks medical or other aid, whereas the psychopath is recognized by his outward misbehavior of antisocial acts and rarely seeks the aid of a doctor or anyone else. The neurotic realizes that there is something wrong with him, whereas the psychopath is satisfied with himself and puts the blame on others whom he claims are at fault for interfering with his desires and actions. As to psychosis (known to you as "insane"), it differs from the above two conditions in that ability to differentiate right from wrong and adhere to the right is lacking and that such an individual by his facial expression, statements, or acts, will impress you that the man is severely odd and utterly out of group relationship.

The above brief descriptive differences should suffice for your general idea. However, remember that your job is well done if you help detect abnormal cases for medical examination. The diagnosis will have to rest entirely on *scientific evaluation by the medical officer.*

17. Q. After a case has been judged to be a psychopath by the medical officer, what type of a report should be expected by a Section VIII board or other hearing groups?

A. A certificate should be prepared,

a sample being presented. Note in the diagnosis, details of the individual's misbehavior are given. Stereotyped statements to describe any psychopath are worthless unless accompanied by the detailed action misbehavior of each case. The following is one for Section VIII board:

-----HOSPITAL
FIELD

(Current date)

CERTIFICATE

This is to certify that (name), (rank), (serial number), (outfit), (field), (state), was examined for neuropsychiatric status on (date) at this hospital and the following are the conclusions and recommendations:

1. Diagnosis: Constitutional Psychopathic State, Emotional Instability Type, manifested by chronic abnormal behavior since childhood, being a severe problem in school, necessitating 18 months in a Truant school, very poor civilian work record, having numerous jobs and never holding one more than two months, weak will to alcohol with frequent drunkenness from the age of 18, no interest in any goal in life, misbehaving for immediate pleasures without consequences of the future, arrests for drunkenness and disorderly conduct; and then continuing this chronic social maladjustment behavior pattern in the military as evidenced by numerous AWOL's, being confined to the Stockade for about one-half the time of his military stay of three years, being unaffected by punishments, showing no interest in learning or adjusting from his experiences, periodic mood swings, irresponsibility, impaired judgment, and a lack of interest to conform to the demands of the military or any other group.

2. LOD (line of duty), No. EPTS (existed

prior to term of service). Partially due to willful misconduct and not exaggerated by military service.

3. He is not a candidate for rehabilitation, nor is he eligible for reassignment since his retention in service would only impair morale and efficiency of the squadron.

4. Strongly recommend separation from military service by AR 615-368 because of undesirable habits and traits.

*5. Attached to this certificate are copies of the Red Cross survey and of misbehavior incidents, the latter being itemized by this EM's CO.

/signed/

Chief of the Neuro-
psychiatric Service

A similar certificate is presented in cases studied prior to general court-martial, but in addition, should clearly state there is no insanity and also that the individual can conduct his own defense with aid of counsel.

With such a certificate, the officers on various boards will have ample medical details to enable them better to carry on their duties.

CONCLUSION

Practical aspects of the psychopathic personality have been given for the non-medical officer. Psychiatric terms and approach have been purposely eliminated in order not to cloud your understanding. The material offered to you is in strict compliance with military views. It is hoped that the data presented will be of "reference" service to you in your future duties, thereby enabling you to interpret such cases in their true light with the ultimate aim of serving the military well.

*The items in paragraph 5 in the certificate are attached when available, but are not mandatory.

Seventh Army Crosses the Moselle River

Received from Headquarters, Seventh Army.

WHEN the Seventh Army reached the Moselle River on 20 September 1944, rapid enemy withdrawal ceased. For the first time since D-day, Seventh Army forces met an organized foe, entrenched in prepared defensive positions which formed an established line. By the clever use of the 11th Panzer Division in blocking and screening, the German Nineteenth Army had effected a vast turning movement, using the Belfort Gap as a hinge with the Moselle River and the Vosges Mountains as a new defensive line.

The German plan was to protect the passes and approaches to the Vosges, to keep open the Belfort Gap, and, when eventually forced to do so, to pull back to the Rhine. Along the Moselle itself a lack of heavy artillery concentrations was an indication that the enemy intended to fight only stubborn delaying actions to prevent an early crossing of the river and to concentrate his main efforts on defending a line which ran roughly through Remiremont to St. Die on the foothills of the Vosges. By withdrawing his extended right flank the enemy was now in position to join with the newly constituted Fifth Panzer Army to the north.

Accordingly, Seventh Army plans were changed to meet a new tactical situation. Elements of the VI Corps were to be relieved by the French First Army in the Belfort area, where the French were ordered to capture Belfort and clear the west bank of the Rhine in zone. The American VI Corps, after regrouping, would advance to the north along the axis Vesoul-St. Die-Strasbourg, establish and maintain contact with the U.S. Third Army, and capture the city of Strasbourg.

In order to comply with these instructions, VI Corps alerted the 3d, 36th, and 45th Divisions to be prepared to cross the Moselle. Division commanders were told to advance in at least two columns with one regiment in reserve to be committed only on corps order. Warning against overextension in depth and

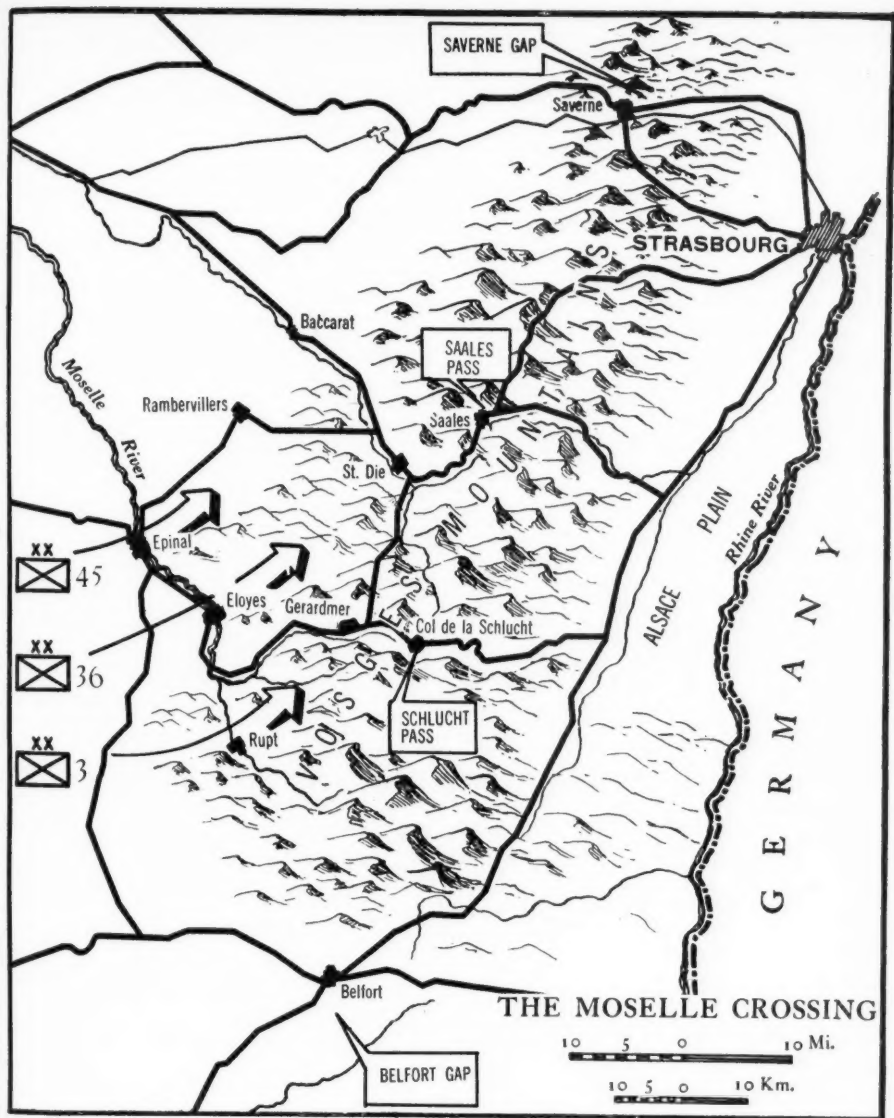
failure to close all combat elements on each phase line as rapidly as possible was also emphasized. The boldest use was to be made of reconnaissance elements to maintain contact with the enemy and to harass his movements.

The town of Epinal on the left flank of the Seventh Army sector to the north is the most important communications center in the High Vosges region. Two main routes pass from Epinal through the mountains, one through St. Die and the Saales Pass to Strasbourg, the other by way of Gerardmer through the Schlucht Pass to Colmar and the Alsace Plain.

At Epinal the Moselle River is a rapid-running stream, eighty feet wide and with almost vertical banks, in places twenty feet high. Farther south between Remiremont and Le Thillot, the width and depth of the river are less, thus making fording possible for foot troops. However, a swift current, steep and wooded approaches, and numerous big boulders in the river made the transportation of heavy equipment across the Moselle a difficult problem.

As early as 1 September intelligence reports indicated a German build-up along the Belfort-Vosges line. Later in the month tactical reconnaissance aircraft reported considerable enemy movement from east of the Rhine and work on fortifications along the whole crest of the Vosges. On 19 September the VI Corps G-2 warned that the "Vosges Mountains will make an excellent position from which to defend and it is doubtful if the enemy will evacuate without being forced to do so."

By 20 September the Seventh Army had finished regrouping. The 45th Division, which had been threatening the Belfort Gap, was now moved into a line facing the Moselle River southwest of Epinal. This position between the 36th Division and the XV Corps of the American Third Army constituted the Seventh Army's left flank. At Rupt the right flank was being held by the 3d Division, which was in contact with French units far-



ther south in the Villersexel area. The Seventh Army zone was approximately twelve miles wide and separated on the northeast from the American Third Army by the towns of Darney, Epinal, and Rambervillers; on the southeast it was separated from the First French Army by Lure, Melisey, and Le Thillot, all in the French zone. By 20 September units of VI Corps were in position to resume the attack.

At 1900 hours, 20 September, General Lucian K. Truscott, the Commanding General of VI Corps, issued a field message outlining the plan of advance. The Moselle was to be crossed in order to obtain the key communications centers in the Vosges which would open a passage to the Alsace Plain and the Rhine. The 45th Division, on the left, was to seize Epinal and secure a crossing in that vicinity, then advance northeast to seize Rambervillers and Baccarat, in the direction of the Saverne Gap. The 36th Division, in the center, was to cross the Moselle in the Eloyes area and advance without delay to seize St. Die near the Saales Pass. On the right flank, the 3d Division was to secure crossings in the Rupt area and advance to seize Gerardmer near the Schlucht Pass. The 45th and 3d Divisions were to maintain liaison with the Third Army and the First French Army and were to protect the corps flanks. Upon arrival on the line, Rambervillers-St. Die, the VI Corps was to continue its advance with its weight on the axis Baccarat-Sarrebourg-Strasbourg through the Saverne Gap. The enemy, dug in north of the Moselle and in the approaches to the Vosges, was prepared to oppose this maneuver.

In the center of the Seventh Army zone the 36th Division was scheduled to make the first crossings of the Moselle in the vicinity of Remiremont. Civilians reported a ford near Eloyes, five miles north of Remiremont, but a reconnaissance was to be made all along the river. As early as the middle of September river-crossing equipment was brought forward, and by the night of 20 September sixty-five assault boats had arrived in the 141st Regimental area with twenty-five DUKW's en route.

During the afternoon of 20 September the 141st Infantry began a reconnaissance in force of the proposed crossing area. Shortly after 1400 hours the Regimental Commander reported to the 36th Division that chances were good for a crossing near Eloyes, since no enemy activity was apparent in that vicinity. Furthermore, there was excellent observation available from the high ground 1,000 yards southwest of the town. The Division Commander ordered the 141st Infantry to cross and secure Eloyes and the high ground around it. It was planned that the 143d Infantry would pass through the 141st, as soon as a bridgehead had been secured.

Advance elements were guided through the dense woods between Raon-aux-Bois and the Moselle River by the Mayor of Raon-aux-Bois, a retired French naval officer. His intimate knowledge of the terrain made it possible to locate a route away from the roads and trails, thus preventing the Germans from discovering any movement until the last possible moment. At 0300 hours on 21 September the 131st and 155th Field Artillery Battalions began firing on enemy positions across the river; and, as dawn approached, all operations were obscured by fog in the river valley. The 141st Infantry was now in position to jump off.

Shortly after 0700 the 141st Regiment crossed the river and began advancing northward along the east bank. Little opposition was encountered, though it grew heavier as the advance continued. The 143d Infantry crossed at the same place at 1515 hours on 21 September in a column of battalions. The regiment was opposed only by scattered small-arms fire and before nightfall had seized the hill overlooking the area. While the 141st and 143d Regiments were securing the bridgehead over the Moselle, the 142d occupied that portion of Remiremont west of the river. By nightfall an infantry support bridge had been constructed, and the first vehicles and armor began crossing.

Heavy fighting took place before Remiremont could be cleared of the enemy on 23 September, but by the following day the entire 36th Division had succeeded in cross-

ing the Moselle and in establishing a bridgehead from Remiremont north to Jarrenil. A Bailey bridge at Remiremont and a heavy pontoon bridge constructed at Jarrenil insured communication for heavy traffic supporting the bridgehead. The division advance and build-up continued while the remainder of the VI Corps crossed at locations above and below Remiremont.

On the left flank of the 36th Division, the 45th was advancing to the northeast to cross the Moselle. By 19 September relief of the division had been completed, and its former sector had passed to the control of the First French Army. The 45th moved to a position southwest of Epinal and prepared to resume the attack. Plans called for the 157th Infantry to cross on the left between Epinal and Chatel, the 180th in the center at Epinal, and the 179th on the right at Arches. One company of the 120th Engineer Combat Battalion, the division engineers, was placed in support of each regiment. Sixth Corps also furnished additional engineer support. By nightfall of 21 September the engineers were in position to support the infantry crossings.

The 157th Regiment was to be on the northern flank of the division, occupying a key position between the Third and Seventh Armies. On 19 and 20 September the regiment shuttled approximately eighty miles, moving through Bains-les-Bains to the vicinity of Darnieulles. Patrols were sent along the river to find undamaged bridges or fordable points. A bridge that could be used was found, although it was inside the Third Army sector. It had been built at Chatel

by the American XV Corps. On the night of 21-22 September elements of the 157th crossed at this site and also in the vicinity of Igney. Attacking south through dense woods toward Epinal with two battalions abreast, the 157th Infantry met enemy small-arms fire, which slowed the advance and inflicted a number of casualties. By 24 September, however, the



CROSSING THE MOSELLE RIVER NEAR VECOUX, FRANCE. A MEMBER OF THE CREW OF AN ARMORED RECONNAISSANCE CAR GOES FOR AID FOR HIS STRANDED VEHICLE.

regiment had occupied the town of Girmont and had captured Hill 373 (altitude in meters).

The 180th Regiment of the 45th Division was given the task of clearing the town of Epinal. For a month the Germans had been strengthening the surrounding forts, and Allied agents reported about seventy strong-points in and about the town. Three battalions of enemy infantry, reinforced by artillery, mortars, and antitank guns, defended Epinal. All approaches were not only heavily mined and booby-trapped, but they were also defended by road blocks covered by machine-gun and automatic rifle fire. Along the western bank of the river, elements of an SS unit had automatic weapons spaced every few yards. Prepared charges were placed at likely crossing points to cave in

the banks of the Moselle, and many of the town's streets were mined. The FFI [French Forces of the Interior] and civilians stated that all but two bridges across the Moselle in Epinal had been blown.

On 20 September the 180th Infantry regrouped and prepared to assault Epinal. The attack was so planned that the town would be approached from both flanks. During the afternoon of the 21st, tanks and tank-scarifiers of the 191st Tank Battalion leveled road blocks and succeeded in occupying the high ground overlooking Epinal. The 180th held its position during the night through heavy concentrations of enemy artillery, tank, and rocket fire.

Throughout 22 September the 180th Infantry was engaged in clearing the west side of the town against determined enemy resistance. Patrols were clashing, and there was considerable house-to-house fighting. Extensive mine fields and road blocks had to be cleared. Tanks were placed in firing position along the west bank of the river to assist in the attack. At 0930 the 45th Division notified the regiment that eighteen assault boats and seven rafts were being sent forward in preparation for the river crossing.

Infantrymen in the meantime continued to fight their way into that portion of the town west of the Moselle. At 1320 the 180th reported to 45th Division headquarters that "we are sending a couple of girls...FFI agents...back to your place. They have a lot of information. They report there are two bridges in town...the girls came over one of them. They have a map of the town that shows all road blocks and all the mined areas. They report enemy dug in for 500 yards...that has been substantiated. We can see them and are firing on them...There had been a lot of Krauts dug in on the north side of that hill. We haven't had much luck in driving them out...They report the place is heavily mined and there are a considerable number of road blocks all around the town. There is about a half a regiment on both the east and west sides of the town; a majority on the east side of the town are in the woods..."

In the afternoon of 22 September the Germans appeared to be pulling out of Epinal on roads leading eastward. American artillery began shelling traffic which could be observed moving along these escape routes. The 35th Division, which was then engaged at Eloyes, was notified of this enemy movement toward its zone to the southeast and was also informed that the 45th would probably enter Epinal that night. Shortly after 1600 hours the report was confirmed that the Germans had pulled out most of their troops west of the river and had blown the last two remaining bridges. The 180th pushed forward patrols to ascertain what holding forces remained and it was found that a crossing could be made after nightfall. That night the engineers made a reconnaissance for a crossing; but enemy small-arms and mortar fire, particularly from the east bank of the river, interfered with the operation. All fixed bridges had been demolished but it was thought that a Bailey bridge could be rapidly constructed at either of two possible sites.

On 23 September the 180th Infantry forced three river crossings in the face of heavy small-arms, mortar, and tank fire. One battalion entered that portion of Epinal on the east bank with the mission of clearing out isolated groups of enemy who were still using houses and other buildings as strongpoints. All crossing sites were covered by machine guns placed on the west bank, and riflemen were installed in buildings close to the river to keep the enemy pinned down.

With the capture of Epinal, the Seventh Army gained control of the key communication center in the Vosges. In the town were found fifteen locomotives; a large number of railroad cars; and dumps of ammunition, maps, and military supplies. Epinal was to become a vital base for future operations in the Vosges. The Commanding General of VI Corps sent his personal congratulations to the 180th Infantry Regiment on the success of its operation.

On the right flank of the VI Corps, the 3d Division encountered the most difficult terrain and the most determined enemy opposition on the Moselle line. It was the

last of the three divisions to cross the Moselle. The routes from the division positions at Melisey and Faucongy to the river at Rupt-sur-Moselle and Le Thillot led through a heavily forested section of the Vosges foothills and was particularly adapted for enemy defensive and delaying actions. The slowness of the French advance exposed the division's right flank and retarded its progress. In the 3d Division zone the approach to the Moselle, and not the river itself, was the chief obstacle.

At daybreak on 20 September the 3d Division resumed the attack northeast toward the Moselle with the 7th and 30th Regiments moving generally along the main highway (northeast) out of Faucongy. The 15th Infantry remained in reserve with one battalion still in the process of being relieved by the French. By mid-morning the advance of the 7th and 30th Regiments had been practically halted because of stubborn enemy resistance in the village of Melay. This mountain village lay near the French zone on the right flank of the Americans, and its reduction was essential before the advance could continue. The enemy was operating largely in isolated groups and taking full advantage of the thick woods and high ground. Road blocks consisted of a series of logs covered by thirty or forty infantrymen armed with machine pistols, machine guns, and antitank guns. In order to envelop Melay from the north the 1st Battalion of the 30th

Infantry moved out from Faucongy and attacked southeast to secure Le Mer. Armored support was not available because continuous rains had made the poor mountain roads impassable for tanks and tank destroyers.



GERMAN PRISONERS TAKEN IN EPINAL, FRANCE, ARE MARCHED BACK TO THE PRISONER-OF-WAR CAGE. MOST OF THEM ARE SNIPERS AND DEMOLITION MEN.

During the afternoon artillery heavily shelled enemy defenses and in return received devastating flanking fire from the heights north of the town of Melisey, not yet cleared by the French. At dark Melay fell after bitter house-to-house fighting.

Throughout 21 September the attack continued against stiffening resistance, and it was two days later before the 7th Infantry was in position to cross the Moselle and attack the town of Rupt. About midnight of the 23d a bridge was found intact; advance elements crossed the river and began to fight off enemy attempts to blow the bridge, which had already been prepared for demolition with nineteen boxes of TNT. By 0500 hours

the next morning an extensive bridgehead had been firmly established, and by mid-morning all units of the regiment had crossed the Moselle.

The French First Army had only reached the suburbs of Melisey on the 22d, thus leaving the 3d Division right flank exposed on a twelve-mile front from Melisey north through Esmoulières to Rupt-sur-Moselle. The 15th Infantry, in reserve, and the 117th Cavalry Reconnaissance Squadron covered this exposed flank, blocking all roads and trails that cut the steep, heavily wooded hills and were available to the infiltrating enemy. On 23 September the German infiltrated back into Esmoulières, thus threatening the entire operation, but were driven out the following day. The VI Corps commander visited the French II Corps commander to arrange for the protection of this flank. However, the French advance north never materialized, and their forces finally had to move through the American zone to take up the flank position, after the 3d Division had crossed the Moselle and was fighting two miles beyond their bridgehead.

The 30th Infantry attack made slow progress against stubborn enemy holding forces; and bad weather, poor visibility, and rugged terrain added to the difficulties of the advance. On 25 September the regiment was still two miles southwest of Rupt, held up by German defenses at Le Chene, a village on the road running along the west bank of the Moselle. The highway was impassable because of a series of heavily-mined road blocks. Well defended enemy positions on the flanks met the 30th Infantry's advance with fire from small arms, mortars, self-propelled, and 20-mm flak guns. The infantry was forced to make its way forward through pouring rain and dense woods. Le Chene was taken on the afternoon of the 25th, and the regimental objectives on the hill overlooking Le Thillot were secured before noon the following day. The area was then turned over to the French, and the 30th Infantry was ordered to move by motor to Remiremont and to cross to the east bank.

During the last week of September VI Corps had successfully crossed the Moselle. The east bank within the Seventh Army zone was being cleared of the enemy; and bridges at Epinal, Arches, Jarmenil, Eloyes, Remiremont, Moxonchamp, and Rupt were in operation. Prisoners stated that initial orders had been to withdraw to the Rhine; but they added that these were later changed and units told to hold for twenty days, because fortifications along the crest of the Vosges would not be completed until that time. The Germans had fought stubbornly to hold the Moselle line and now continued to contest every foot of the advance toward the Vosges passes. East of the Moselle, troops ran into strong outpost and suicide rear guards ranging from company to battalion strength. These pockets could not be bypassed because there were no available reserve troops to clean them up.

The last few days of the month were mainly utilized to consolidate the bridgeheads of the three infantry divisions comprising the Seventh Army. The 45th Division began its advance northeast to seize Baccarat and force open the Saverne Gap; the 36th Division moved on St. Die near the Saales Pass; and the 3d Division pushed toward Gerardmer near the Schlucht Pass. The city of Strasbourg, on the Rhine, was the most important objective of the Seventh Army in coming operations.

On the high ground east of the Moselle the Germans now occupied a definite defense line. Their withdrawals ceased; and they held on tenaciously, counterattacking frequently. The enemy resorted to jungle tactics in the heavily-wooded terrain between the Moselle and Moselotte Rivers and frequently infiltrated behind the American lines to ambush supply trains. Thus as the battle progressed, the enemy became more determined to make every advance as costly as possible.

This determined policy of the enemy, along with the constant movement of our troops, insufficient rest, long periods in the line, continuous action, inclement weather, difficult terrain, and the increasing use by the Germans of mines, mortars, and artillery—all

took a heavy toll of American fighting men. During the month of September alone the 3d, 36th, and 45th Divisions, which made up the VI Corps, suffered 5,159 casualties.

For a period of fifty-nine days, from 20 September to 19 November, the Seventh Army

attacked the Vosges defense line before braking through to the Alsace Plain. With his back to the Rhine, the enemy fought cunningly and tenaciously giving ground only when forced to. The final battle for Germany had now begun.

"Technical" Principles of Division Transport Operation

Prepared for the MILITARY REVIEW by Maintenance Division, Army Service Forces.

IN an excellent article in the December 1944 issue of MILITARY REVIEW, Major F. J. Crossett, Ordnance Department, says, "The vehicles and accompanying personnel which operate primarily in the supply, evacuation, and maintenance of the division are the lifeblood of the infantry division." He then describes the *tactical* principles of the operation of division transport.

Another set of principles, equally important, were not included in the Major's article, for obvious reasons. They are what might be called the *technical* principles. Because the tactical principles are dependent upon proper application of the technical principles, the latter are presented for the guidance of staff officers concerned with division transport operation. They involve the maintenance of equipment, without which division transport cannot function with full efficiency, or, in extreme cases, cannot function at all.

The first principle, which applies to the individual soldier, is that the performance of preventive maintenance services must be habitual. The soldier must be so indoctrinated with the necessity of performing authorized maintenance services that he considers them a matter of life and death. Since equipment failures in combat actually *are* a matter of life and death, not only for the vehicle operator but also for the men he supplies or evacuates, this is a lesson the soldier can be made to take seriously.

The second principle, which applies to officers, is that the administration of the preventive maintenance program must be in accordance with authorized procedures and

must be closely controlled. Laxity in planning, record keeping, supervision, inspection, training, or in the allotment of time and facilities for preventive maintenance is bound to result in loss of vital transportation.

The third principle, which involves both officers and men responsible for organizational maintenance, is the proper application of instructions prescribed in TM 37-2810. This necessitates following the first echelon maintenance procedures listed on the back of WD Form 48, "Driver's Trip Ticket and Preventive Maintenance Service Record"; instructions in the technical manual and War Department Lubrication Order for the vehicle; intelligent use of WD AGO Form No. 450, "Preventive Maintenance Roster"; WD AGO Form No. 9-75, "Daily Dispatching Record of Motor Vehicles"; WD AGO Form No. 13-1, "Automotive Disability Report of Vehicles Disabled More than Three Days"; WD AGO Form No. 478, "MWO and Major Unit Assembly Replacement Record—Organizational Equipment File"; and the series of preventive maintenance service and technical inspection work sheets for various classes of vehicular equipment, WD AGO Forms Nos. 461-464, is required. For staff officers, making occasional personal inspections using the spot-check inspection reports—WD AGO Form No. 9-68 for wheeled and half-track vehicles and 9-69 for full-track and tank-like wheeled vehicles—is essential.

When these principles are followed, motor transport *does* become the "lifeblood of the infantry division." When they are not followed, motor transport slowly bleeds to death, and there is no plasma that can restore it.

SOP for Court-Martial Charges in Field Forces

LIEUTENANT COLONEL BYRNE A. BOWMAN, *Judge Advocate General's Department*
Division Judge Advocate, 106th Infantry Division

For a complete outline of Military Justice Procedure, the reader is referred to TM 27-255, February 1945.

—THE EDITOR.

PREPARATION, investigation, and trial of court-martial charges continues to be a mystery and a difficulty to many officers and enlisted men. Many persons have no occasion to be familiar with such administrative matters. Others bog down in the details of the Manual for Courts-Martial or the advice of various individuals who usually stress certain sacred cows, formalities, and taboos that whip you before you start.

An SOP should be simple and practical, yet legally sound and effective. It should meet the requirements of the Manual in all respects. It should furnish the commanding officer all the information available about the accused as well as the case, so that the commander can act intelligently on the charges. It must not unduly burden busy officers. It must be fast and thorough.

Company clerks function better if there is one fixed way for them to prepare papers, and instructions for doing it are in front of them. For one thing, no one else can tell them a different way of doing it. The same is true of officers. Usually, all personnel strive to accomplish what is desired but are not sure as to exactly what is desired and exactly how it is desired to be accomplished.

The accuser has an opportunity quickly to take signed, sworn statements in longhand on the spot, when the offense happens in his company area; but he should not have to do any typing. The investigating officer can easily take signed, sworn statements in longhand from the witnesses while he interviews them; but he should not have to type the statements and then go back and get the typed ones signed.

The unit personnel section has much information in the service record and on the Form 20 that should be considered by the investigating officer, and the commanding officer; but they should not have to go dig it out.

A set of forms has been designed, and is in use, which furnishes an SOP to meet the above requirements, and which also gives the trial judge advocate some instructions. Here they are:

----- (Hq)
----- (Sta)
----- (Date)

201-

SUBJECT: Court-Martial Charges
TO : Commanding Officer, --- (Orgn)

1. Court-martial charges against the above person are hereby forwarded, within 24 hours after his confinement at this station (or if not within that time, reason for delay is:)

2. A brief summary, in longhand, of the available evidence to support the charges, is (or separate sworn statements, in longhand, of the essential witnesses, are) attached. All essential copies of morning reports, arrest reports, passes, service record showing prior convictions, etc., are attached, except the following which are not available for the following reasons:

3. Following information concerning this man is submitted for your consideration:

- a. AGCT Score: ; Group
- b. Education: yrs in
- c. Civilian Occupation: yrs as
@\$ per
- d. MOS Number: ; Classification or
Duty:
- e. Number of admissible previous convictions:
- f. Present Character:
- g. Present Efficiency Rating:
- h. Other pertinent information, by way of background, such as punishments imposed under AW 104, prior convictions that cannot be considered by a court-martial, furloughs, unsuccessful efforts to rehabilitate the man in the unit, wounds, decorations, etc., is (not) attached as a separate inclosure.

4. In my opinion, the accused is --- men-

tally responsible, and a psychiatric examination is (not) necessary.

5. In my opinion, the accused will ---- be of eventual useful service to the army because:

6. Trial by a ----- court-martial is recommended.

Accuser

--Incls

1 - Charge Sheet (in trip)

2 -

3 -

4 -

5 -

6 -

7 -

201-

1st Ind

HQ

TO:

You are hereby designated to investigate the inclosed charges against the above accused, in accordance with AW 70, par 35a, M.C.M., and the instructions on the back hereof (see "Instructions to Investigating Officer" below—Ed.). You will render your report within 48 hours, unless additional time is granted by this headquarters.

By order of

--Incls n/c

Adjutant

201-

2d Ind

Investigating Officer, ----- (Sta & Date)

TO: Commanding Officer, ----- (Orgn)

1. The inclosed charges have been carefully and completely investigated. The accused was informed of the offenses charged against him; the names of the accuser and of the witnesses; the fact that the charges were about to be investigated; his right to cross-examine the witnesses against him if they were available and to present anything he desired in his own behalf either in defense or mitigation; his right to have the investigating officer examine available witnesses requested by him; and his right to make or submit a statement in any form subject to the risk of having such statement used against him.

2. Signed sworn statements of all available witnesses (including any made by the accused) and all pertinent documents, are attached, properly marked and listed as inclosures. Such witnesses were either examined in the presence of the accused and he was afforded an opportunity to cross-examine them and the statements then prepared, or the statements were first obtained and then submitted to the accused and he stated in writing on each that he did not care to cross-examine the witness. The following witnesses and documents are not available for the following reasons:

3. The facts in the case are sufficient to sustain the elements of proof of the offenses charged, as required by M.C.M., except:

4. In my opinion the accused is ---- mentally responsible. I have (not) obtained a psychiatric examination.

5. I have ---- interviewed the unit commander, first sergeant and squad or section leader, and examined the accused's service record, in an effort to understand the accused and his offenses. A brief discussion of my findings is ---- attached, properly marked, and listed as an inclosure for your consideration in determining disposition of the case.

6. I have considered the nature of the offenses, the evidence, the age of the accused, his military service, the necessity for preserving the manpower of the nation in the present emergency and of salvaging all possible military material, and the established policy of the War Department that trial by general court-martial will be resorted to only when the charges can be disposed of in no other manner consistent with military discipline.

7. I recommend:

a. That no changes be made in the specifications or charges, except:

b. Trial by ----- court-martial.

Investigating Officer

--Incls

1 -

2 -

3 -

4 -
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10 -
11 -
12 -
13 -
14 -
15 -
16 -
17 -
18 -
19 -
20 -

201 - 3rd Ind
HQ

TO: Commanding General, 106th Infantry
Division.

Upon careful consideration of this case,
I recommend

Commanding

--Incl n/c

INSTRUCTIONS TO ACCUSER

1. Consult the index in the M.C.M., and get the page numbers for the discussion of the offense and the form of specification. Read both.

2. Send the unit personnel officer signed sworn statements in longhand of available witnesses, and a note in longhand stating what charge you want prepared. If you are unable to get statements, get the facts by interview, telephone, reports, letters, etc., and send the UPO a note in longhand giving as many of the facts as possible, covering who, what, when, where, why and how.

INSTRUCTIONS TO UNIT PERSONNEL SECTION

1. *Charge Sheet.* a. Determine whether the UPO or the unit commander is to sign the charge sheet, and then prepare it in triplicate. (See instructions at pages 236, 17, and 18, M.C.M.)

b. Page 1. *Name:* Do not use NMI or IO and do not abbreviate. Abbreviations else-

where, except in the specification, are permissible. *Age:* Age at date of filing charges. *Pay:* Base plus longevity. *Allotment:* State "none" or the amount and the class. Type above "Allotment" the words "C I F Deduction;" and state "none" or the amount. *Data as to Service:* Follow the printed instructions. Do not list all transfers. Show date accused was assigned and joined present organization. *Data as to Witnesses:* State "Against Accused;" and "For Accused;" List documentary evidence. Do not list affidavits, arrest reports, and letters. List physical evidence, like a knife, and the name and address of the custodian thereof. *Data as to Restraint:* "Confined by civil authorities, Chicago, Illinois, 2 Feb 1944. Confined at Post Stockade, Fort Sheridan, Ill., 10 Feb 1944. Confined at Post Stockade, Camp Atterbury, Ind., 20 Feb 1944." Do not state "apprehended."

c. Page 2. Do not number a single charge or a single specification under a charge. If more than one charge, number each with Roman numerals (I, II, etc.). If more than one specification under a charge, number each with Arabic numerals (1, 2, etc.). Do not put the accused's serial number in the specification. On AWOL, specify absence as from "his command."

d. Page 3. *Affidavit:* If the accuser does not have personal knowledge, strike out that part of the affidavit. State specification(s) of the charges(s).

e. State value of property: "a coat, value about \$5.00"; and value of money: "about 1000 francs, Belgian currency, of the exchange value of about \$22.50." State separately the value of each article stolen. If the value is over \$50.00, merely state: "value over \$50.00." Do not burden specifications with immaterial details which add to the burden of proof. Omit serial numbers on equipment and vehicles. Use the word "wrongfully" in each specification under AW 96.

2. *Letter of Transmittal.* a. Before preparing the letter make all papers in triplicate except voluminous ones such as an IG report. (Make typewritten copies of each

longhand statement, attach the original type-written one on top of the one in longhand and treat them as one.) Put all papers in a pile, with the charge sheet on top. Beginning at the top, mark them (and the copies thereof) in pencil in the lower left corners as Incl 1, 2, 3, etc.

b. Type the letter in triplicate for signature by the person who is to sign the charge sheet. List the inclosures as they were marked. For example:

8 Incl

1 - Charge Sheet (in trip)

2 - M/R Co G, 424th Inf (in trip)

3 - Arrest Report (in trip)

4 - Note from Capt Conner (in trip)

5 - Rpt of Inv by IG with 2 inds and 5 exhibits

6 - Ltr from Mrs Smith, 4 Mar 44, with 1 ind and 1 incl

7 - Evidence of Prior Conv (in trip)

8 - Sworn statement of Sgt Smith (in trip)

INSTRUCTIONS TO INVESTIGATING OFFICER

1. Your investigation will be *thorough, impartial, conscientious, and prompt*. Half-hearted, slipshod work shows a lack of attention to duty. Your organization commander relies upon you to furnish him with information for a complete understanding of the case and the man.

2. *First*. Consult the index in the M.C.M. and find and read the discussion and required proof of the offenses charged. Check the memorandum, sworn statements, extract copies of morning reports, etc., submitted by the accuser, the wording of the specification, and the maximum punishment at page 97, M.C.M. *Know the case*.

3. *Second*. Interview the accused privately in a quiet, fair, and orderly manner. Tell him who you are, what your duty is, who the accuser is, what the charges are, who the witnesses are, and what the maximum punishment is. Show him the entire file. Tell him you are to make a report of the case to the commanding officer so that he can determine what disposition to make of the case. Tell the accused that you are to interview

all available witnesses, and that he can cross-examine any of them, or, you can first obtain sworn statements from them and show them to him and then he can cross-examine, or note on the statements that he does not desire to do so. Inform him that he may present anything he may desire in his own behalf, either in defense or mitigation. Ask him if he has any witnesses he wants you to interview. Tell him that he can make a statement or not as he desires, that he is not required to make one, and that if he makes one it can be used against him.

4. *Third*. When you interview a witness be tactful, friendly, and patient. Don't constantly interrupt him. Write up his statement in longhand in the first person, while he talks. "My name is Pvt John Doe, Service Co., 424th Inf. I was at PX No. 1 at 2000 on 21 April 1944." If you take a statement from the accused: "My name is Pvt John Doe, Service Co., 424th Inf. I have been warned that I do not have to make a statement, and that if I make one it can be used against me. I make the following statement freely and voluntarily." Ask the person to write "Sworn to and subscribed before me this ---- day of ----" and sign your name as Investigating Officer. If he does not desire to sign the statement, write "This statement was made to me on the ---- day of ----. The witness refused to sign it" and sign your name as Investigating Officer. If you have to interview a witness by telephone handle it that way.

5. *Fourth*. If the accused makes a statement, take it down just as he says it. *Don't edit it. Don't substitute your words for his*. In making the statement he expects you to present it to the commanding officer just as it is given to you. Be sure that the accused has every opportunity to make a complete statement. If he overlooks some phase it is proper to inquire if he cares to include anything in his statement about that. If some of his remarks are obviously wholly irrelevant, it is unnecessary to take them down.

6. *Fifth*. Have you secured statements covering all evidence necessary for both prosecu-

tion and defense? For example, where accused is charged under AW 75 of running away while his organization was before the enemy, do you have statements showing the tactical situation, covering location, objectives, and activities of accused's unit, and the location and activities of the enemy? Or, where accused is charged under AW 94 or 96 with wrongfully taking and using a government vehicle, do you have statements showing that he had no authority to take the vehicle? If he is charged under AW 93 for theft of a vehicle, do you have any evidence indicating that he intended to permanently deprive the owner thereof? In guard cases, do you have statements showing how the guard was operated, posted, inspected, and relieved; and what the general and special orders were, if any, particularly with respect to accused's post; and have you obtained extract copy of the guard book, if any, authenticated by the custodian thereof, and statements from the Officer of the Day, and the Officer, Sergeant, and Corporal of the Guard?

7. *Sixth.* Assemble all the statements and other papers you have obtained into a pile. Put the inclosures that came with your appointment on top, in numerical order. Then number your additional inclosures, in proper sequence. Then draft your report with its list of inclosures, in pencil. (See back of accuser's letter.) Have all your inclosures and your report typed in triplicate. Place each longhand statement under the first type-written copy thereof, staple the two together and treat them as one. After typing, separate your report, with inclosures, into three sets. Mark one "For the Accused."

INSTRUCTIONS TO TJA OF SPECIAL COURT

1. *First.* Trial normally will be held within ten days after the offense, or the delay explained. General instructions for the TJA will be found at pages 30 and 258, M.C.M. Immediately study the file. Know what evidence is available. Study the M.C.M. for the proof required. If the evidence appears insufficient, notify the appointing authority. Immediately prepare in longhand any stipulation you want to obtain. "It is

hereby stipulated and agreed by and between the Trial Judge Advocate, the Defense Counsel, and the Accused, that if Policeman John J. Kearns were present in court he would testify (as stated in the attached arrest report) or (that he apprehended the accused at 42nd St. and Broadway, New York City at 2300, 11 May 1944 in uniform.)" Draw lines for all three signatures and sign your name at once. Tell the President of the court that you have the case and ascertain where and when he wants the trial, and the uniform desired.

2. *Second.* Tell the DC you have the case. Take him with you to serve the charges. Give the accused a complete copy of the file, including the charge sheet. Immediately sign the certificate of service on the back of the original charge sheet. Introduce the accused to the DC. Hand the DC any proposed stipulation and ask him to accomplish the proper signatures, and return it to you, if agreeable to the accused.

3. *Third.* Immediately interview the named witnesses and any others whose testimony may be necessary or desirable. (Notify the DC of the names and probable testimony of any new witnesses you intend to use.) Know the whole story of each witness. Explain to each witness how the court will be seated, how he is to salute the President, what questions are to be asked, how objections are handled, and how and why cross-examination is conducted. Tell the witness to answer the questions, get to the point and stop—no ramble.

4. *Fourth.* Put all your documentary evidence (including stipulations) in a pile, and beginning at the top, letter each separate document as an exhibit beginning with the order appointing the court as "A", the charge sheet as "B", etc. (You will not actually offer "A" and "B" in evidence, however; you will state that they will be so marked. The first exhibit you offer is "C".) Put in sheets of paper with brief descriptions to be substituted by the court for pistols, knives, etc. When there is some technicality of proof required before an exhibit can be offered, note what it is, and how you will meet it,

on a sheet of paper and attach it to the exhibit. Then make an outline of your order of proof that is logical and in keeping with the sequence of events, as nearly as possible. If you are planning to announce an oral stipulation in court, note how you will express it and that you will ask the accused in court if he agrees to it.

5. *Fifth.* Having determined time, place, and uniform for the trial, send out notices to all concerned; arrange a detail to clean the courtroom, and arrange the furniture; prepare typed copies of the charges and specifications (not the whole charge sheet) for distribution to the court when the case is called for trial; prepare your legal citations for authorized punishment, essential elements of proof, admissibility of evidence, etc.; arrange for attendance of accused in proper uniform and for guard; arrange for attendance of witnesses; get a supply of scratch pads and pencils, a form for find-

ings and sentence, and a form for report of result of trial. Study the procedure at pages 260 and 271, or in the Outline of Procedure. Be prepared to act with confidence and dignity with careful regard for the accused's rights at all times.

6. *Sixth.* When the trial is over, report the result to the appointing authority, and if the accused is to be confined, send him under guard, with report of trial for Prison Officer to the appointing authority. Write up the record of trial on the mimeographed form therefor, putting in extra sheets where needed. Summarize the testimony fully and show which part was brought out by cross-examination. Get the record authenticated. If the President is absent, get another member to sign. (See page 268, M.C.M.) Attach the original file underneath the record and exhibits. The entire case should be on the desk of the appointing authority within three days after the trial.

British Science and the Royal Navy

From an article in *The Fighting Forces* (Great Britain) April 1945.

BRITISH scientists played a big part in helping to win the U-boat war and constantly caused the enemy to change his U-boat tactics.

Some details of a pep-talk Admiral Dönitz made to German flag-officers at Weimar in the early days of 1944 can now be revealed, and his comments on British science, particularly radiolocation, are very interesting. "At the end of last year and the beginning of this," he said, "one development became very obvious which long ago, even in peacetime, had been feared, that the enemy might deprive the U-boat of its essential feature—the element of surprise—by means of radiolocation. With these methods he has conquered the U-boat menace.

"The scientists who created radiolocation have been called the saviors of their country. So it was not superior strategy or tactics that gave the enemy success in the U-boat war, but superiority in scientific research.

"Germany made the great mistake of calling up her scientists into the armed forces instead of letting them continue their researches, and it was not until eight months later that the Reichswehr ordered the release and exemption of scientists from military service."

Britain did not make this grave error. Her scientists were immediately marshalled on priority research within and without the armed Services. The Admiralty, for example, employing over three thousand scientists in its various laboratories and departments, has gone a step further than in any other country and embodied them into the newly formed Royal Naval Scientific Service.

The Royal Navy is thus the first in the world to recognize the importance of maintaining research in war and peace by creating this special service, which includes the men who mastered the magnetic mine.

Uniform Strength Reports

LIEUTENANT COLONEL JAMES M. EMIGH, *Field Artillery*

Military Personnel Division, Army Service Forces
Formerly Instructor, Command and General Staff School

A business composed of 250,000 employees is difficult to envisage—and the expansion of such a business by thirty-two fold, to over 8,000,000 employees, in little over four years, is beyond visualization in the business world. Multitudinous personnel problems would be involved, not the least of which would be personnel accounting. Such a feat, however, was accomplished by the War Department in expanding from a peacetime army of 250,000 in March 1940, to a war machine of over 8,000,000 men in September 1944, each a specialist in his own right.

The personnel accounting problems of such a tremendous enterprise, with personnel spread to the far corners of the world, are of such magnitude as to be without parallel, and are further amplified by the imminence of large-scale redeployment for furtherance of the war in the Pacific and by the proposed release of upward of 1,000,000 men following V-E day.

At the time of the initial entry of United States Army Forces into combat in World War II, theaters of operation were given authorized strengths in the form of Tables of Organization for units and Tables of Allotments for overhead installations, plus an authorized replacement stockage providing a reserve from which to maintain units at authorized strength. This plan resulted in a situation under which theaters requisitioned based upon their desires, but with no direct control exercised over them by War Department, and with the flow of replacements being governed by theater demands.

PERSONNEL ACCOUNTING SYSTEM

In early 1944, when the troop ceiling was reached and induction quotas were leveled off with a view to induction of only such numbers of personnel as would be required for replacement of losses in order to maintain troop ceiling, it became impossible for zone of interior pools to fill requisitions

for replacements in the amounts requested by theaters, which in many cases were in excess of actual losses.

At this time the delicacy of the situation which was arising was realized, as well as the necessity for positive control over theater strength against authorized strength and for control of depot stockage. For the first time it became evident that a standard reporting system was necessary in order that the theaters and the War Department would be on a common accounting basis.

During the early part of 1944 the War Department undertook a thorough study of the situation then existing in active theaters, in which a considerable overstrength existed and among which there was a surplus of personnel which could not be placed within the theater. This study presented an opportune time for consideration by the War Department General Staff of a proposed new personnel accounting system, which was reviewed by representatives called in from two of the major theaters, and adopted by the War Department with minor changes.

In May 1944, a War Department directive was issued establishing a uniform Personnel Accounting System, under restricted letter file AG 320.2 (13 May 42) OC-ESPGAR, dated 15 May 1944, subject: Oversea Replacement System—Estimates, Reports, and Requisitions, to Commanding Generals, Oversea Theaters, and Bases, Defense Commands, and Departments. The first reports under the new system were submitted in June as of 31 May 1944.

(For a detailed discussion of Oversea Replacements—Personnel Accounting System, see an article of this title by the author in the February 1945 issue of the MILITARY REVIEW.)

STRENGTH ACCOUNTING AND REPORTING OFFICE

In April 1944, an ad hoc committee was set up by the Deputy Chief of Staff to examine current procedures in personnel con-

trol and strength reporting. On the basis of the findings and recommendations of this committee, the Strength Accounting and Reporting Office (SARO) was established in the Office of the Deputy Chief of Staff. SARO relates the four strength figures—Troop Basis Strength, War Department Authorized Strength, Operating Strength, and Actual Reported Strength. It first relates War Department authorizations to the Troop Basis, then obtains operating strength figures comparable to actual reported strength through the use of the machinery of the Strength Reporting System. This yields two sets of related strength figures—Authorized and Troop Basis, and Operating and Actual. The final step is to relate the two steps, thus providing reconciliation of all four. After the figures have been related by this process, SARO prepares consistent strength reports for use by the War Department in planning and controlling the strength of the Army.

By the early fall of 1944 SARO was in complete operation, and was publishing monthly, for use of the War Department, the various reports for which it was established. It was then found that the strength reports of the Personnel Accounting System for Overseas Replacements and of SARO were not on a common basis because of the existence of varying types of planned or authorized strengths, and variations in the manner in which certain actual strength figures were being reported, with the result that there was an apparent difference and some duplication in the resulting strength figures.

UNIFORM STRENGTH REPORTS

In early 1945 a study was made by the War Department, together with representatives of two active theaters, with a view to definitely relating the Personnel Accounting System for Overseas Replacements to the system of uniform strength reporting then in effect, in order to obtain strength reports Army-wide on a common basis and possible of preparation with the utmost simplicity by the standardized Machine

Record System then in effect in the zone of the interior and in all overseas commands. On this basis, strength reports would provide a consolidated and related statement of the current requirements of the War Department for strength and replacement reports from theaters, commonly acceptable to the War Department and to the theaters, and form a context in which all strength information could be presented and considered.

Upon completion of the proposed directive and implementing instructions, and prior to publication to overseas commands, representatives of one of the major theaters made a trial run of the new system for one month and advised that, with minor changes which were adopted, the present standardized Machine Record System could readily produce the desired reports.

In February 1945 a War Department directive was issued establishing Uniform Strength Reports, under classified WD AGO letter file AGOM-E-F 320.2 (23 Feb 45), subject: Uniform Strength Reports, dated 23 February 1945, with inclosures consisting of Current Directive—Strength Reports, 31 March 1945, together with a compilation of detailed implementing instructions. This directive rescinded all instructions and reports under the Personnel Accounting System for Overseas Replacements then in effect, except for WD AGO Form No. 658, Requisition for Rotational Personnel, covered by separate letter directive, and established a system consisting of the following reports:

1. Monthly Strength Report by Unit and Type of Personnel, submitted by mail.
2. Strength by Troop Basis and Branch, submitted by mail.
3. Strength Status Report, submitted by teletype, priority radio, or air courier, and consisting of the following sections:

Section 1—Theater Strength Status, consisting of twenty lines, each showing reported authorized strength, actual strength, and over or under authorized strength.

Section 2—Theater Replacement Status

End of Month, consisting of fourteen lines, each showing Total, Officers, Nurses and D & PT, WO & FO, and Enlisted.

Section 3—Gains and Losses During Month, consisting of nine lines, each showing Total, Armored, Field Artillery, Infantry, Engineer, Medical, Combat Crews, and Others.

Section 4—Projected Theater Replacement Status, consisting of ten lines for each of eight months projected, each line showing Total, Armored, Field Artillery, Infantry, Engineer, Medical, and Others.

4. Requisition Status and Projected Replacement Requirements Report, submitted by mail, with first line totals for all columns submitted by priority radio, and consisting of (1) Requisitioned from Zone of Interior for each of two months, and (2) Projected Estimates of Requirements from Zone of Interior for the third to eighth months hence, both by arm and service and showing Total and Officers.

5. Current Theater Replacement Status Report, submitted by mail, and showing by arm and service, total and officers, (1) Desired Distribution of Authorized Stockage, (2) Replacement Depot Stockage, (3) Over or Short in Units and Overhead, and (4) Theater Replacement Status.

6. Replacement Availability and Retraining Status Report, submitted quarterly by radio, by active theaters only, and consisting of twelve items on Replacement Availability, Unfilled Unit Requisitions on Hand, and two items on Retraining, each line showing Total, Armored, Infantry, and Others.

7. Personnel Requisition, submitted by radio and confirmed by mail.

STRENGTH REPORTS OF THE ARMY

One of the most important applications of the Uniform Strength Reports is their use in the publication by the Strength Accounting and Reporting Office of Monthly Strength Reports of the Army, which provide a series of related data, commonly acceptable to the War Department and to the theaters, in two volumes as follows:

Volume I

Section I - Graphic Summary.

Section II - Total Army Strength.

Section III - Three Major Commands and War Department Groups.

Section IV - United States Army Forces Administered Directly by the War Department.

Sources of Data

1. Troop Basis Planned Strength—WD Basis.
2. WD Troop Deployment Strength—WD Troop Deployment.
3. WD Authorized Strength—WD Troop Basis.
4. Reported Authorized Strength.

Reported Actual Strength.

Strength Reports Submitted by Commanders of each U.S. Army Force Administered Directly by the War Department (overseas theaters and U.S. Defense Commands), each of the Three Major Commands and War Department Groups.

Volume II

Total Army Strength.

Three Major Commands and WD Groups. United States Army Forces Administered Directly by the War Department.

Section I - Strength.

Section II - Replacement Status and Informational Items.

Sources of Data

Strength Reports Submitted by Commanders of each U.S. Army Force Administered Directly by the War Department, each of the Three Major Commands and War Department Groups.

Among other related strength studies, these reports provide various studies of United States Army assigned strength, including the following specific types of assigned strengths:

1. United States Army Assigned Strength by three major continental commands and War Department groups, and United States Army Forces administered directly by the War Department.
2. United States Army Geographical

Strength, of the zone of the interior, including the three major continental commands, War Department groups and Defense Commands, and strength en route to overseas commands, as well as strength by geographical location outside the zone of the interior which is administered directly by the War Department.

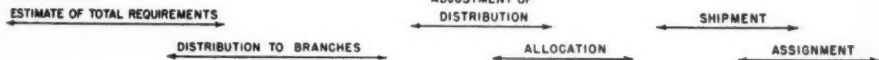
3. Theater Ration Strength, including United States Army transients, United

division of the schedule into (I) Functions and (II) Processes.

I. Functions:

1. Revised estimates of total net theater replacement requirements, projected for the third to eighth months hence, are received monthly and, after study and adjustment by War Department, serve as a basis for induction and training. This process requires a maximum of three months.

FUNCTIONS:



PROCESSES:

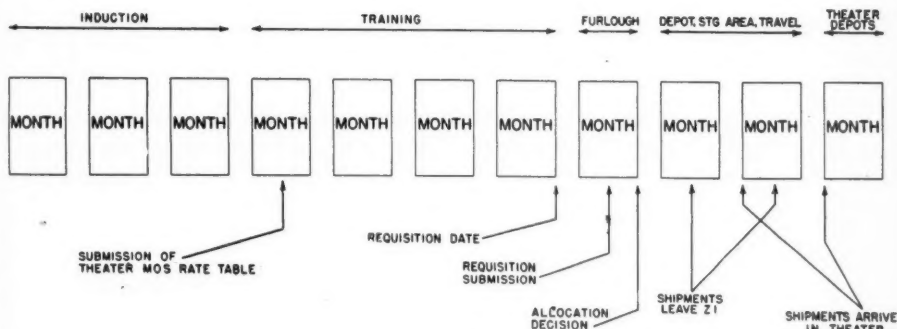


FIGURE 1.

TIMING SCHEDULE—REPLACEMENT SYSTEM.

States Navy transients, permanently stationed, prisoners of war, allied military strength, civilian personnel, and miscellaneous personnel.

REPLACEMENT SYSTEM

Uniform Strength Reports provide the basic figures from which all strength studies are made in connection with the Overseas Replacement System, and serve as the basis for induction, training, and allocation of replacements to overseas commands. A study of the Timing Schedule—Replacement System (Figure 1) is most easily approached by a

2. Overlapping the study of estimated requirements and the induction period, distribution to major continental commands and branches is made. This process also requires a maximum of three months and is concurrent with input for training.

3. During and after basic training, further adjustment of distribution is necessary up to completion of training.

4. Allocations of replacements are made to overseas commands concurrently with the final adjustment of distribution, the last month of training, and the beginning of

furlough period, over a period of approximately two months.

5. After allocations have been made, shipments to overseas commands must then be set up and a period of approximately two months is required for arrival in depot and staging area and overseas travel, during which time the theaters, having been notified of allocations, initiate the necessary procedures for assignment of personnel to theater depots and eventually to units.

II. Processes:

The actual processes which must be gone through in order to make replacements available for overseas commands are as follows:

1. Induction, from the placing of the induction call based upon estimated requirements to completion of actual induction, requiring approximately three months.

2. Input for training and completion of training, requiring approximately four months.

3. Upon completion of training, furlough and travel to Personnel Replacement Depot, requiring approximately one month.

4. Processing in Personnel Replacement Depot, processing through Staging Area, and overseas travel time to the overseas command, requiring approximately two months.

5. Processing in theater depots and assignment to unit, requiring approximately one month.

As a basis for initiating training after distribution to branches has been made, Rate Tables are revised and submitted quarterly by theaters, adjusted and published by War Department, and applied against branch distribution at the beginning of the training period to determine training output by Military Occupational Specialty for each branch. Upon completion of training, the same Rate Tables for a particular theater are used as a basis for shipment of replacements against bulk requisitions for that theater.

Requisitions are submitted monthly and serve as a basis for allocation during the last month of training and the ensuing fur-

lough period, during which time definite War Department allocation are made and directives for shipment are issued.

Upon issuance of directives for shipment and publication of necessary orders, personnel proceed from furlough to Personnel Replacement Depots, through staging area, and arrive in overseas commands within from one to two months of issue of shipping instructions.

REQUISITION STATUS AND PROJECTED REPLACEMENT REQUIREMENTS

In the direct application of Uniform Strength Reports to the theater and War Department problem of Requisition Status and Projected Replacement Requirements, the reporting system provides the necessary flexibility in estimating anticipated net requirements by theater, and over-all, for the third to eighth month hence, and provides for requisitioning of replacements in advance to build a reserve replacement stockage for estimated net losses in planned future operations (Figure 2).

Column 1 in Figure 2 represents authorized Table of Organization and Table of Distribution strength, as well as total authorized theater strength, including authorized replacement stockage.

Column 2 presents graphically for the end of the month for which reports are submitted, actual Tables of Organization and Tables of Distribution strength, as well as actual total theater strength, including actual replacement stockage.

Columns 3 to 10 show for the succeeding eight months an estimate of anticipated net losses, based on normal attrition and on estimated net losses in planned future operations.

Actual strength of Tables of Organization and Tables of Distribution is maintained at or near authorized strength by drawing on replacement stockage for necessary replacements, thus causing a monthly fluctuation in the strength of replacement stockage.

Columns 3 and 4.—Personnel on requisition for arrival in theater during the first

and second succeeding months should be sufficient in each month to maintain authorized strength, including replacement stockage.

Columns 5 to 10.—Anticipated net requirements planned to be requisitioned for arrival during the third to eighth month hence should

finally become firm in a requisition for arrival in the overseas command during the second month after submission of the requisition, thereby making available in the Theater Replacement System of the overseas command a reserve in anticipation of losses,

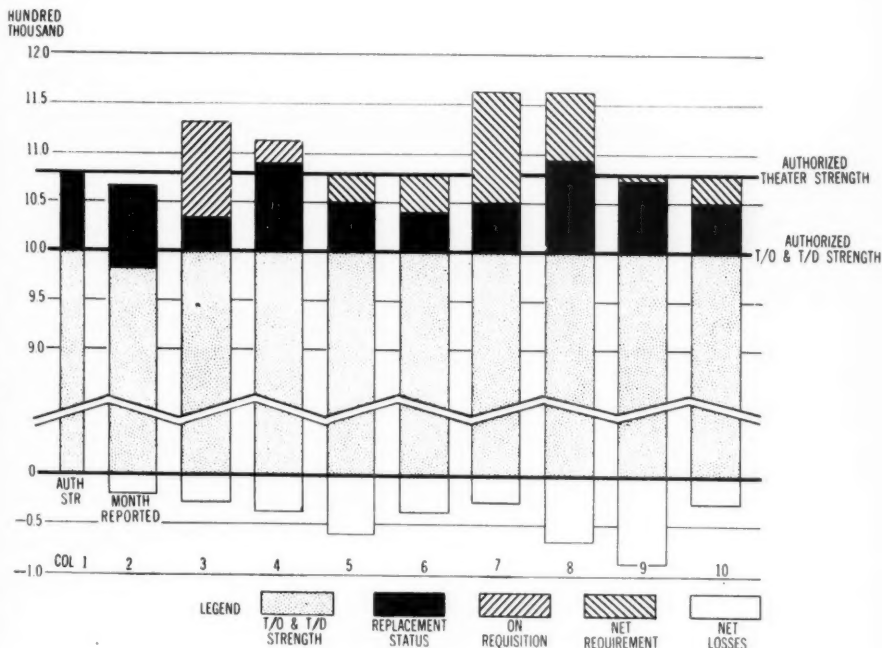


FIGURE 2.
REQUISITION STATUS AND PROJECTED REPLACEMENT REQUIREMENTS.

be sufficient in each month to maintain authorized strength, including replacement stockage, and where deemed necessary, to offset anticipated heavy losses resulting from planned future operations (Columns 7, 8, and 9), and serve as a zone of interior training basis against which future requisitions will be placed.

These anticipated net requirements for the third to eighth month hence are revised monthly by each overseas command, and

and making it possible to maintain units at or near authorized strength.

For a more detailed study of this subject, attention is invited to classified WD AGO letter file AGOM-E-F 320.2 (23 Feb 45), subject: Uniform Strength Reports, dated 23 February 1945, with instructions consisting of current directive—Strength Reports, 31 March 1945, together with a compilation of detailed implementing instructions.

Beachheads to Victory

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IF bridgeheads have been the gateways to victory in previous wars, the beachhead has usurped their function in this one. The war passed into the phase of coming Allied victory with the establishment of the beachheads in French North Africa in 1942. From that point on, the continuing attack was by way of one beachhead after another. Even when the Western Allies were well inside Western Europe, there were still beachheads to be won. Great amphibious operations were executed well into the interior of the continent. Until the last, almost, there was always one more beachhead to win.

It has been so, also, in the Pacific. There the island war has had to hazard everything on the beachhead. The beachhead was, first, the objective to be reached; then, to be secured. After which the beachhead was the navigation-head, the railhead—everything in the manner of a terminus to (until it became in turn a mere way-point on) the line of communications.

A beachhead is a world in itself. Its efficient creation and maintenance, from the logistics viewpoint alone, is a complex matter of intricate organization. Its inherent problems are indicated by the time taken to work out their sound solutions. It has always been so in history, whether ancient modern, or very recent.

The beachhead technique of the Pacific began with the Marine Corps landings on the island areas in the south. The technique was essentially what had been employed in peacetime and in their recent Marine Corps training on our East Coast. The struggle that ensued, to maintain our hold on Guadalcanal, emphasized the necessity for a thoroughgoing development of all that is implied in "beachhead"—the approach, the assault, the exploitation inland, and especially the logistics organization of the beach. The result has been an amazing development of beachhead technique.

The contributions have been manifold. In

Africa and Europe, the original Marine Corps technique expanded into (almost) a new art. In successive landings, this was developed to a new height. Its accomplishments contributed to the Pacific development. In the latter area, the forces of the Southwest Pacific worked out their own variants and tested procedures; at the first opportunity, in an advance beyond all calculations for rapidity and for minimum losses, they island-hopped, -skipped, and -jumped to Manila. In the Philippine landings, all the developed pattern of Pacific war was applied with such success, notwithstanding the employment of many new and untried troops, as to dazzle, even at a distance, any professional eye that looked toward the glint and glitter of those tropic beaches.

It has been a magnificent piece of work, and the process has gone on inexorably toward its only acceptable conclusion. The great beachhead on the shores of the last vital area of Japan will no doubt be, if a landing there is necessary, the best beachhead of them all.

* * * * *

Beachhead technique has, until recently, been pretty well omitted from the public picture. Popular writers have done a good job of it, in general terms. But the underlying detail has seldom revealed itself because of the overlying stamp of "secret," "confidential," or "restricted." Soon after VE-day, however, the curtain began to lift, officially.

Well-organized beachheads are like clocks, in that every part has to work as it should, or the clock will develop eccentricities. There is, of course, a central theme of applied technique, but that is what the heart of the works really is; there is no one "piece" that explains the whole picture. The whole picture, indeed, would take a Pantheon de Guerre, not a mere frame among frames, to depict its major elements. It is the integration of the mass of concordant detail that really makes an organized beachhead.

In writing, the whole assembly would require a bible, not a mere book, to do it justice. The U.S. "bible" of Joint Action, itself, is, of course, a mere booklet; *but* it is in fact a mere outline. The elaboration of this doctrine is essential FM and SOP would easily fill the classic five-foot shelf, or several of them.

* * * * *

In simplest terms of technique, the whole process has been described by our highest seagoing authority as "the opening up of beachheads for our ground forces." In the Pacific, this has been a naval task. It is preceded, flanked, ringed around, and protected by far-flung naval air strikes (e.g., the fast carrier force) and by land-based air bombardments, with attendant raids by big-gun surface forces. But, on the spot, the process is: (1) ensure the safe arrival of the convoy; (2) neutralize enemy resistance through employment of own air and gun support; (3) clear the path to the beachhead; (4) effect the actual landing of assault waves and immediate supports; (5) maintain neutralization of enemy defenses during the advance inland from the beach; (6) assist in the organization of the beach; and (7) ensure local security ("cover") during the actual operation. All in all, the naval objective is: utmost contribution in every conceivable way to the accomplishment of the assault mission (the infantry mission) with the minimum loss.

It is no easy job. In all history it has been recognized as the hardest, riskiest military undertaking when the defense is anywhere near reasonably adequate for the performance of its mission.

* * * * *

The convoy of the attacking Armada, though only the first stage, is intricate enough even if no serious surface resistance is encountered. The transports are relatively unarmed and vulnerable—helpless against serious attack; yet all depends on what is in them. The troops, the equipment, the supplies are indispensable (or they would not be there), and protection from enemy aircraft

alone is a complex task. The convoys are, typically, great aggregations of 800 to 1,000 surface vessels (less shipborne landing craft). There were almost 1,200 ships in the Iwo Jima attack, and more at Okinawa. Preliminary scouting at sea is necessary for effective antiaircraft protection. There is anti-submarine control to be maintained throughout (as to them, one *never* knows, until—perhaps—too late). And there is the interior organization of the convoy to be created, to be maintained, to be changed from time to time, and always to be watched and covered. The final disposition in the transport area is a distribution to be carried out with clockwork precision, if the little boats are to follow their chosen courses to the right beaches when the time comes.

* * * * *

Next comes the "softening-up" bombardment. You soften him "up" so that you may more easily beat him "down." This is of utmost importance to the assault soldier about to make the boat approach to the beach. As to all enemy emplacements from which effective fire can be brought upon the approach, the gunfire-support objective is destruction of personnel to ensure neutralization of its fire potentialities. These gunfire bombardments, with reinforcing air bombing and (when neighboring terrain permits) integrated land-artillery fire, have become famous both in Europe and Asia. Their effectiveness is not challenged. The consumption of ammunition is considerable. The last "prewar" estimates made at Newport were not conservative; the calculators were not wholly satisfied with available data and had no hesitancy in doubling and tripling their estimates, and even so their calculations have been far exceeded. The expenditure is necessarily great if it is to knock out the enemy's installations and disrupt his dispositions, and, more especially, if the fire continues (as it does) night and day.

During the Philippine campaign, the naval support forces were engaged almost continuously, from 19 October to 1 March. The lesson of Guadalcanal had been that enemy

naval gunfire was hard to take; the decision was to increase our own. It has been increased since that time. At Okinawa, according to a public statement made by the Secretary of the Navy a Japanese prisoner called our naval gunfire the "most feared, destructive force" with which the Emperor's soldiers had to contend.

This is a real fulfilment of the hopes of prewar days, when expectations were far from sanguine on the basis of experience in the preceding war. There were difficult problems to solve as to type of ammunition, fire control, and storage of components on ship-board; but those problems have been dealt with. The expenditure of ammunition at Iwo Jima increased tremendously. Plans were then in the making further to accelerate the rate. Availability of such ammunition for use without stint is a tremendous factor in reduction of loss of life for the attacker. But this is not all the story. The gun support from smaller calibers, the rocket fire, and the use of smoke are all parts of the completed pattern.

* * * * *

Clearing the path to the beach is one of the critical phases. It is an exceedingly dangerous mission, and details, at the time of writing, were still "classified" matter. When the time comes to write it up, it will be one of the thrilling chapters of war history. Men have died in mere experiments with such work. To do it successfully against strong resistance is a remarkable accomplishment.

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The actual assault calls for a positive control over a vast organization of landing craft of all types. Compared to the strained efforts of 1942, from which (however) all this perfected technique actually stems, this is now a smooth operation. But it is only so because it is thoroughly prepared and professionally executed. Discipline and seamanship are the all-important factors in the forming up of the boat waves and in the maintenance of formation during the approach, hundreds of boats moving abreast—not an easy accomplishment in rough weather. Fire support,

local and intense, from landing craft of all types is an important feature of this phase.

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The Navy's job in organization of the beachhead itself is the work of the beach party in the handling and unloading of supplies, in conjunction with the (Army) shore party. The job includes necessary hydrographic work and the Navy share (where allotted to the beach party) of Joint Communications.

* * * * *

The remaining function of those listed is that of the *covering force*, which provides what ground troops call "local security." For amphibious operations, however, it may involve (and has) a far-flung system of protection. This force is typically a strong aggregation of carriers and warships—usually the fast carrier task force aforementioned—which stands off the beachhead to protect the great convoy of merchant ships and its supporting naval vessels.

It was our covering force that engaged in the two great sea battles of 1944. First of the two was the battle of the Eastern Philippines in June, when the Japanese undertook a great sea-air attack on our forces assaulting Saipan and Guam. Second of the two battles was the effort of the Japanese Fleet to put a finish to our ships and other forces entering Leyte Gulf. The results were a real back-bone-breaking experience for the enemy. Since then he has not been able to muster a force able to contest the control of the high seas.

The Japanese efforts, both in the Marianas and the Philippines, had the objective of sinking our convoys so as to isolate our beachheads. Their theory was to re-enact the Battle of Savo Island (August 1942) on a larger scale—come in at night from converging directions and destroy as many combat vessels as possible in order to facilitate the consequent complete destruction of the helpless transports. However, in these two efforts of June and October 1944, the Japanese lost twenty-seven warships, with the effect of reducing their Navy to a medium-sized task force. There may, therefore, never again be

in this war a naval battle of the magnitude of either of these.

Notwithstanding this fact, there is still need of cover for the beachhead. The Germans during this war had available only two great modern ships of the line and some six or seven of modern cruiser type, with appropriate destroyer forces, but this relatively small force was sufficient to keep the British immobilized in or pinned to the area of the North Sea and the North Atlantic for three years. Our Allies had control of the sea, but they had to be ready to meet the *Bismarck* and *Tirpitz* should these redoubtable opponents come out to contest it or defy it. The Germans had in fact "a fleet in being," large

enough to constitute a constant major threat. So long as the Japanese have such a force, our troops will need naval *covering forces* in the Pacific.

* * * * *

Even after the Japanese Fleet has all been sunk, our sea forces will have major tasks to perform in convoying, in isolating targets, and in attacks thereon until no more targets exist within range and until there is no longer need of protection for convoys. So long as there is a beachhead there to be supplied under naval and air threat, the U.S. Navy will be waging war in the Pacific to support the establishment and maintenance of that beachhead.

Japanese Pilots

From *The Sphere* (Great Britain).

CHARACTERISTICS of the Japanese pilot are something about which Allied air personnel around Australia are chary of generalizing. Experiences have been so varied that no one is anxious to outline a universal pattern. But for all that, our pilots have encountered, from time to time, some recurrent types of Jap combat behavior and tactics.

It is the experience of some pilots in this theater of war that Japanese pilots are, mainly, "exhibitionists." On the few occasions during attacks on their airdromes when they were able to get their fighters up into the air in time, the Jap pilots have behaved oddly. The most likely diagnosis has been that the Japs were "turning on a show." Below them on the ground were their own people and installations; the spectators were Japanese; the Japanese fliers had to put up a performance.

As a result, the Japanese have been greeting the Allied pilots with tactics resembling aerobatics. Zeros and floatplanes have been coming in at weird angles, twisting themselves in maneuvers, but never getting very dangerous. From the ground it probably looks spectacular. That is about all.

Over the past fifteen months the evidence is that Japanese fighter-pilot quality has deteriorated. It is a dangerous thing to say, but the experience of the Allied Air Arm suggests it.

No Lightning, Airacobra, or Thunderbolt pilot dogfights with the Japanese. The Kittihawks, flown by Australians and Americans, come nearest to the dogfight. But fighter tactics from our side have changed. In a sense, they have become simpler. Our fighters, with their superb strength and power, grind the air clean. They skid down in formation, destroying everything that crosses their sights.

As can be guessed, the capabilities of the Japanese fighter pilot are no subject for generalization. Their aircraft are not up to Allied aircraft if our pilots compel them to fight our way. Some of the Japanese are persistent and valorous; others follow the letter of an ancient book. But there seems no doubt that our fliers have got their measure. And there seems no reason to suppose that the situation will alter.

Air Force Supply in Theaters of Operations

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THE problems of supply to air units are varied and complex and no two theaters have the same difficulties. Each attacks the problem in a slightly different manner, and the result is a situation wherein it is impossible to say that organizations for supply to air units in all theaters are stereotyped.

There are no two theaters whose organizations for supply of air units are exactly the same. Organization varies both as to the Theater Air Force mission and according to the wishes of the commanding general; but fundamentally, all follow AAF Regulation 65-1 which prescribes the employment of service units.

Theater Air Service Commands have been organized in all theaters, and in most theaters Air Force Service Commands. Theater Air Service Commands appear on the same command level with the Tactical Air Force and Strategic Air Force, on the assigned basis of one to the theater. Air Force Service Commands are organized on the basis of one per air force, and are created to service, maintain, and supply the air force to which it is assigned.

In some theaters such as the European Theater of Operations where two or more air forces are operating, each air force has its own Air Force Service Command and in addition there is a Theater Air Service Command on the next higher echelon of command.

The Theater Air Service Command is not organized to command the activities of each of the Air Force Service Commands, but exists primarily to coordinate their functions, to allocate levels of supply, and to act as a consolidating headquarters for requisitions from the theater to the zone of the interior.

Overseas AAF depots are organized to maintain, supply, and service combat units. Depots are not all known by the same name in all theaters—however, differing in name, their functions remain the same. For example, Air Force General Depots are called

Strategic Air Depots in the Eighth Air Force and Tactical Air Depots in the Ninth Air Force.

Intransit Depots are located in the vicinity of ports of debarkation. These depots are created with the primary role of clearing the port area of AAF equipment and supplies, and segregating AAF supplies from ground force equipment. AAF Intransit Depots are operated by Air Force personnel, trained and specialized in the art of handling fragile and expensive AAF equipment. Prior to the creation of AAF Intransit Depots, Army Service Force personnel, inexperienced in handling AAF equipment, unloaded the vessels at the ports, and as a result supplies were damaged, and sometimes late in arriving at the forward depots. In order to correct these deficiencies, specialists were assigned to the port areas to operate AAF Intransit Depots which serve as reconsignment points for deliveries forward, and as clearing houses for Air Force supplies for the port area.

Base Air Depots are also located in the vicinity of ports of debarkation. These depots are normally established on the basis of one per theater for the purpose of bulk storage, major overhaul of aircraft and accessories, major engine overhaul, assembly and modification of aircraft, and fourth echelon maintenance beyond the capabilities of the more advanced depots.

One of the biggest problems of a Base Air Depot is storage and issue of supplies and equipment. In echeloning supplies within the theater, most of the theater reserve of AAF technical supplies will be within the Base Air Depot area. This comprises a sizeable task when considering bulk storage of ninety to 150 days of technical supplies for all the AAF units with the theater.

Aircraft shipped by water to the theaters are assembled in the Base Air Depots. This will include the necessary modifications needed on each aircraft in order that it may meet operational demands of that particular theater.

Base Air Depots operate under the command of the Theater Air Service Command, and function to render service to all of the air forces of the theater.

Forward of the Base Air Depot are the Air Force General Depots organized to provide fourth echelon supply and maintenance to the operations of a minimum of four combat groups. The size of Air Force General Depots may vary. Some may include numerous attached units and may be organized to serve an entire air force; others may be small, created to take care of four or five combat groups. The Air Force General Depot is a semi-permanent installation, owing to the heavy equipment necessary to perform fourth echelon maintenance and repair of AAF equipment. Operating in conjunction with the Air Force General Depot are other depots such as the Ordnance Ammunition Depot for the purpose of furnishing the combat groups with bombs and AF ammunition, an AF gas and oil depot to provide fuels and lubricants of the higher specifications necessary for aircraft operation, and other depots such as Quartermaster Class I and III, Engineer Class II and IV, which may be attached as the situation dictates.

The air forces, whenever possible, depend upon ground sources for common supplies. This necessitates close coordination between the activities of the Theater Air Service Command, Air Force Service Commands, and the communications zone. Combat groups operating in the army area normally requisition their Class I and III supplies from the Army Quartermaster by means of the daily telegram. This requires that Communications Zone Depots supplying army must be aware of air force requirements. Air units likewise obtain common ammunition and clothing from army supply points by means of requisitions sent through army. Combat groups operating in the communications zone operate in a similar manner with reference to common items, requisitioning on a Communications Zone Depot. When the occasion arises in that ground depots are not centrally located, or they are unable to serve air units, then attachments are made to the Air

Force General Depots for the purpose of providing these services. Quartermaster subsistence companies are attached to operate a QM Class I Depot. Chemical companies, engineers, and other T/O units may be attached to operate a depot when ground depots are unable to provide these services.

In many situations the communications zone, through its depots, may handle all AF aviation gas and oil. Early in the Normandy campaign, communications zone pipe lines and truck companies furnished vital aid to air units, working in close cooperation with ground forces.

The most advanced installations used by combat units of the air forces are the Service Centers operated by third echelon supply and maintenance units called Air Service Groups.

Early in the war before the air forces had obtained the high degree of air superiority now maintained, combat groups operated from dispersed airdromes. One combat group composed of four squadrons generally operated from four different airdromes. Air Service Groups were organized to serve two combat groups each, which meant serving as many as eight different dispersed squadrons on eight different airdromes. The Air Service Group, together with attachments from other arms and services, operated the Service Center centrally located in order to serve all eight airdromes.

As the air forces continued to grow, group airdromes or concentrating all the squadrons of a group on one airdrome became the rule rather than the exception. The Service Center soon began to appear on one of the airdromes. This system tended to reduce the mobility of the combat groups; the next solution was Air Service Teams.

The Air Service Team was an expedient way of serving two combat groups with one service group—divide the Air Service Group and its attachments forming two teams each to service one combat group.

The latest development in third echelon supply and maintenance organizations is referred to as the Air Service Group (Special). This Air Service Group (Special) was organized to provide service to one combat

group. Instead of having attached units to augment the Air Service Group, additional personnel from other arms and services such as Quartermaster, Signal, and Military Police, were integrated into the new Air Service Group.

Another advantage of the Air Service Group (Special) was the saving of transportation. No longer was it necessary to serve many squadrons on dispersed air-dromes, as all squadrons including the Air Service Group were on the same field. The commanders of the tactical units were better able to shift echelons of maintenance, thus preventing one echelon of maintenance or supply from being overworked, which would cause a general reduction in the combat efficiency of the group.

The Air Service Group, whether it be of the old type operating the Service Center or the new type serving one combat group, has the same basic reason for existence—to keep the combat squadrons it serves in operating condition, both by supplying and maintaining. All requisitions for supplies come to the Air Service Group who consolidate them, obtaining common supplies from ground depots or supply points, and Air Force technical supplies from Air Force General Depots.

The Air Service Groups are highly mobile, as they must keep up with the combat groups they serve. When the group moves to a new

location, the service personnel must be able to move with the combat group in order that operations may continue at the new location.

The supplying of air units must be flexible, and for that reason no hard and fast laws can govern their organization. Air supply is complicated by many factors. One of the biggest is the factor of variable expenditures. If the weather is good on Monday, millions of gallons of gas and millions of pounds of bombs may be expended. If the weather is bad on Tuesday, practically no expenditures of these bulky items will take place. If the target for Wednesday is a deep penetration, more gas tonnage than bomb tonnage may be consumed; but if the target for Thursday is in close cooperation with ground troops, the ratio might easily be reversed. These variable expenditures demand that the system for supplying air units be highly flexible, and the service units must be mobile in order to keep up with the combat groups it is serving.

There is one salient point concerning supply to AAF units, and that is interdependence and close cooperation with ground force depots, supply points, and the communications zone. In order to maintain flexibility and mobility, air depends, and has to rely, on ground sources for much of its supply, namely those items used by both ground and air, whether operations are being conducted in the zone of the interior or in theaters of operations.

The American Soldier in the Ardennes

From a statement by Field Marshal Sir Bernard Montgomery to war correspondents on 7 January 1945, as reported in *The Times Weekly Edition* (London) 10 January 1945.

BUT when all is said and done, I shall always feel that Rundstedt was really beaten by the good fighting qualities of the American soldier and by the teamwork of the Allies. The American soldier in battle is a brave fighting man, steady under fire and with the tenacity in battle which stamps the first-class soldier. All these qualities have been shown in

a marked degree during the present battle [in the Ardennes]. I have spent my military career with the British soldier, and I have come to love him with a great love. I have now formed a very great affection and admiration for the American soldier. I salute the brave fighting men of America—I never want to fight alongside better soldiers.

The Civil Affairs Detachment

COLONEL DAMON M. GUNN, *General Staff Corps*

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BECAUSE a formal organization to handle civil affairs is new in army procedure, the First Army, in the pre-invasion days, was faced with the task of planning and creating the Civil Affairs organization to be used on the Continent from the group up. Having no precedent on which to base its claims, the staff had difficulty in obtaining necessary allotments of personnel, and for several months the status of T/O's and T/E's was in doubt. However, through the efforts of staff members, T/O's and T/E's were finally established, and from then on, organizational development progressed rapidly. There were many growing pains, as was only natural, but gradually they disappeared as G-5 gained in stature. As in any new organization, there were many unknown factors, the importance of which could not be determined except under actual operational conditions. Accordingly, a certain degree of flexibility was maintained.

The following excerpts from the report of Major John J. Maginnis, an officer commanding a First U.S. Army Civil Affairs detachment, demonstrate plainly the result of all the planning that took place in England. By giving an account of many of the problems met and solved by a unit in this new army organization, Major Maginnis has demonstrated the solidity of the foundation work done by the army G-5 staff.

Because the report stresses the inter-relationship with other services, it is of value to men training for future operations, as well as being of interest to those not familiar with the work of Civil Affairs.

The work and functions of Civil Affairs organizations have been well established in the Battle of France as a necessary and integral part of military operations in the First U.S. Army. These functions, in carrying out the mission of assisting military operations, are rendered by maintaining order, promoting security of occupying forces, preventing interference with military operations, reducing active or passive sabotage, relieving com-

bat troops of civil administration, mobilizing local resources in aid of military objectives, and carrying out predetermined governmental policies of the United States.

The work of direct aid and assistance to the civil population is well understood, for it has been carried out in a highly successful way by the fine teamwork between Civil Affairs staffs directing the operation.

Bringing the community, left in the wake of battle, back to normal has been a major objective of Civil Affairs operations. However, what is possibly not so well understood is that Civil Affairs units have been of considerable assistance directly to both the combat and service forces of the army.

Some of the ways in which this assistance has been given are pointed out in this brief outline. Some of the aids may be the duties of other army organizations, in whole or in part, but the practical aspect of the matter is that the Civil Affairs detachment is on the ground early, finds the work there to be done, and does it. It should be noted that these observations are based on the experience of only one Civil Affairs detachment and are consequently limited in scope. The detachment served in Carentan (Manche), Domfront (Orne), and the Department of Ardennes; the length of this service ran continuously from 9 June 1944 to 12 October 1944, all of which time was spent actually working in the field. During this time, it might be added, all phases of detachment control were experienced—divisions, corps, army, advanced section, communications zone, and base.

INFORMATION

A good Civil Affairs detachment office is an information center for the territory in which it operates. More and more it is apparent that officers, units, or others in the military service come directly to the Civil Affairs office upon arrival in a town with their questions or their problems. It has always been a basic principle in this detach-

ment that it be prepared to give at all times courteous and sympathetic attention to such requests from anyone wearing the uniform. During the days of fast-moving operations, it was difficult to keep information available as to which units were in the detachment territory and where they were. To meet this situation an officer was designated to check the location and movements of all organizations, at frequent intervals, so that prompt and accurate information would be available for all inquiries. The loan of an interpreter, when the situation demands it, is very greatly appreciated by the person who cannot accomplish his business without one. These detachments have supplied information on countless questions and supplied many wants—including such activities as finding stone and crushed rock to repair roads, secretly locating a person with specific military information wanted by the tactical commander, supplying five barbers for troops in the front lines, or finding girls for a soldier show. No request from the other services, however surprising, is ever treated other than seriously. The intelligent and courteous handling of members of the armed forces may be relatively unimportant, but it pays big dividends. When someone in another branch of the service comes seeking help and information, and gets both, he goes away feeling that Civil Affairs units are on the job and know their job.

BILLETING

This is a simple operation, but one that takes a lot of time and often a lot of tact. The Engineer Officer, the "Town Major," charged with this work, authenticated the receipts in the towns in which these detachments operated. Nearly all of the billeting work done in almost three months in Carentan was done by the detachment, locating the space and its owners and making amicable arrangements. Billeting requires a survey of the community, so that when a unit comes into town it can be placed in the best place available with the least delay. It is a tremendous help to the commanding officer of an organization, arriving any time of

the day or night, to be able to call on a Civil Affairs detachment for help and guidance in establishing his organization in suitable billets. Officers calling for this service are always very grateful for the assistance they receive. In this way a friendly contact is established with the new unit, which makes for pleasant relations between the organizations during the period in which they are together in the same community. Old friends who were "taken care of" in Carentan and Domfront were helped again in Charleville; naturally, such relations are most cordial.

PRISONERS OF WAR

Because of the scarcity of U.S. Military organizations in the Ardennes and the close contacts which Civil Affairs detachments had with the civil population and military units of the territory, this detachment of necessity operated as an assembly point for enemy prisoners of war. In Carentan and Domfront there was little direct contact with such prisoners, but in the Ardennes area the reverse was true. For the first month, batches of prisoners were continually being brought in to us; in some cases they were picked up in outlying districts by members of the detachment itself and brought in. They were secured, and when a group of sufficient size was assembled, they were turned over to the military police for transfer to a prisoner-of-war cage. This operation was of definite value in the clearing up of the back areas of the tactical forces.

SECURITY

A strict enforcement of circulation, curfew, blackout, and other security restrictions has always been regarded as of prime importance in a combat zone. It has always been felt in this detachment that the strictest supervision in this field was of direct help to the tactical forces. This was especially true in the Ardennes because it is a Department of rugged terrain, on the frontier, and near to Germany. There is a considerable amount of work involved in the issuance of passes but it has always been done entirely by this detachment as long as it has operated under a tactical unit. The fact that this de-

tachment has picked up, through close scrutiny of all applicants, a half dozen or so persons who, it developed, were under suspicion and were wanted by the authorities, justifies the pains taken in this matter. The prompt check and report of unauthorized bands of armed aliens under no central authority, and the arrangement for their removal by Provost Marshal, is another way in which this detachment has helped the tactical forces with their security problems.

DEAD AND CASUALTIES

All information regarding military dead and wounded, Allied or enemy, was gathered and passed on to the proper authority. When reports were received of places where such dead were buried or unburied, it was investigated and reported directly to the Graves Registration Service, if possible; if not, through G-5 Section, First U.S. Army. Papers and identity tags were safeguarded to make the work of the Graves Registration Service as easy as possible. Every week a report was received from all civilian hospitals in the Department of the Ardennes, listing military personnel confined or treated during the period, their condition, and probable date of release. In this way a close check is kept on all hospitalized military personnel, whether Allied or enemy, who are in civilian hospitals.

CAPTURED ENEMY MATERIALS AND SUPPLIES

The limited means at the disposal of a Civil Affairs detachment for the search and discovery of captured enemy supplies does not allow for a complete and thorough exploring of the whole territory. Nevertheless, by judicious searching and with the aid of reports received from various sources, much material can be uncovered. Such stocks were individually surveyed and reported to First U.S. Army so that the location, kind, and amount of such materials could be brought to the early attention of using services. This search was further implemented by a questionnaire to the civil officials and by checking with the heads of the various services. By means of the press, the importance of se-

curing enemy material was brought to the attention of the public at large, and from the public was received directly much information regarding enemy property. We discovered and made available to other army units for their use stores of such things as gasoline, electrical equipment, office equipment, mess equipment, medical and dental equipment and supplies, coal, sugar, wood, building materials, tools, and dozens of other items, all of which were of direct and immediate use.

CLAIMS

Until a Claims Officer arrives in a town, the Civil Affairs detachment advises on and reports all claims against the U.S. Army. Due to the absence of severe battle conditions in the Ardennes, there were few claims. However, in Carentan the prolonged operations with the consequent presence of large bodies of troops gave rise to many claims. A system of passing all claims through the Mairie for scrutiny and comment before turning them over to the Civil Affairs detachment was devised. This saved the Claims Section much time and effort when they processed the claims, and gave them a truer picture of the facts, enabling them to make prompt and equitable settlements. Claims Officers were most appreciative of this co-operation.

LABOR

From practically the first day in Carentan, local labor was supplied to the U.S. Army through the Civil Affairs detachment. An average of about 300 laborers per day was supplied to the various using services (some of them outside the Canton) who were in great need for such labor. At the direction of the detachment, a labor exchange was established, which provided the labor required. Only through such organization could the number of persons required for vital army operations have been obtained. This organization worked so efficiently that even after the Engineer Labor Officer was assigned to the town, the detachment continued to supply the labor requirements for the army.

SALE OF ENEMY MATERIAL

Much equipment or supplies abandoned by the enemy is of no use to the army but can be of great use to the civil population. If prompt action is not taken to establish ownership and to sell these stores, they will disappear in a remarkably short time. This detachment has concentrated on the turning of such material into cash at the earliest possible moment. Only in this way can money be obtained for material belonging to the U.S. Army which otherwise would never be realized. We have sold such materials as condemned captured motor equipment, cement, seed oats, horseshoes, coke and gasogene chips, horsedrawn equipment, domestic supplies, glass, and many others.

In Carentan, such stores were sold to the amount of 1,500,000 francs; in the Department of Ardennes up to 12 October, well over 1,000,000 francs worth of such mer-

chandise had been sold. All of the proceeds was money that the U.S. Government would certainly never have received otherwise, had it not been for an energetic treatment of this matter by the detachment.

It is a great compliment to the Civil Affairs organization that wherever these detachments have been it has been with genuine regret that the civil government and plain citizens have seen them go. The detachment came to aid these people in a time of acute need, and they brought confidence and new hope with them. But that is largely another story. Great, also, and possibly even greater, is the compliment to a Civil Affairs detachment for doing these things outlined above when a fellow member of our own Army from another branch of the service says to a Civil Affairs officer quite simply, "You've been a big help. You've fixed me up with just what I wanted. Many thanks!"

Australian Aircraft Production

From an article in *Flight* (Great Britain) 26 June 1945.

HAD Australia's aircraft industry been fully developed four years earlier, the whole course of the war in the Pacific might have been changed, and this in turn would have had a profound effect on events in Europe. It was not till the latter half of 1939 that the Commonwealth embarked on the production of a front-line aircraft—the Beaufort torpedo bomber. If 500 Beauforts had been available, what a different story it might have been, but it was not till November 1943 that the 500th Beaufort rolled off the assembly line.

Emphasis has since been laid on the lesson thus learned by the splendid service rendered to the Allied cause in the Pacific by Australian-built aircraft. The lion's share of the work has been done by Australian-built Beauforts, which have performed a wider variety of functions than any other type of

aircraft employed in the Pacific area: as torpedo carriers attacking enemy shipping; in bombing raids on important enemy bases such as Rabaul, Gasmata, Kavieng, Buin, Faisi, Paronga, Wewak, and Timor; in Army and Navy cooperation work; and on long-range reconnaissance over sea and land. Beauforts have also patrolled Australia's 12,000 miles of coastline and convoyed Allied ships carrying munitions and supplies and hundreds of thousands of Allied troops.

This work has been ably supplemented by the operations of other Australian-built aircraft, notably the Beaufighter, the Boomarang, and the Wirraway, whilst more recently the Australian-built Mosquito has gone into action. Moreover, Australian-built Tiger Moths, Wackett Trainers, and Wirraways have proved invaluable for preliminary training.

MILITARY NOTES

AROUND THE WORLD

GREAT BRITAIN

The British Merchant Navy:

Britain started the war with a total ocean-going merchant fleet of 17,500,000 gross tons. In four years, 11,500,000 tons—more than two-thirds—was lost. Up to 28 February 1945, 30,179 British merchant seamen had been killed by enemy action and 3,982 interned by the enemy.

Losses of merchant ships and crews of Britain's allies during these periods are not included in the above figures, nor those of British and Allied warships and naval personnel engaged in the battle of the Atlantic and on escort duty throughout the world.

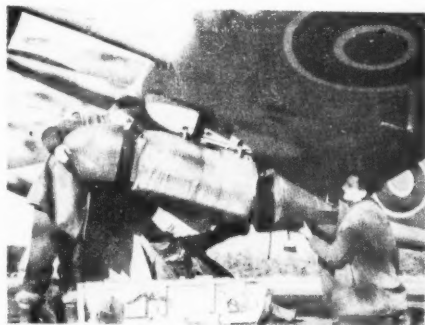
The British merchant ships that have been engaged in this battle of endurance are manned by British Merchant Navy personnel, who, though they wear no uniform, may be recognized by the badge M.N. with Crown worn on the coat lapel. In Britain they are rightly considered as part of the forces and enjoy many privileges as servicemen. Almost all the officers come from the British Isles and the majority of the seamen, though there are men from all over the British Commonwealth and Empire. There are 45,000 East Indians, more than 6,000 Chinese, and a large number of Arab firemen serving on British ships. They have been in the same fight and form an integral part of Britain's Merchant Navy.

In 1941 the British Merchant Navy Pool was started and has been supplying 400 officers and 3,000 seamen per week. It functions all over the world wherever the Merchant Navy sails. Ages in the pool vary from sixteen to seventy-five.

(British Information Services
Press Service, 17 May 1945)

Antipersonnel Air Bombs:

Typhoon fighter-bombers of the RAF carry a new type of bomb load-clusters of high-explosive antipersonnel bombs—for use in



support of the army. These explode without causing the craters which would impede the progress of friendly ground troops. The picture shows how the new type of bomb load is fitted to the Typhoon. A canister containing twenty-six 20-pound antipersonnel bombs is hoisted on to the bomb rack, and then the nose and tail units are added. One canister is carried under each wing.

(*The Sphere*, Great Britain)

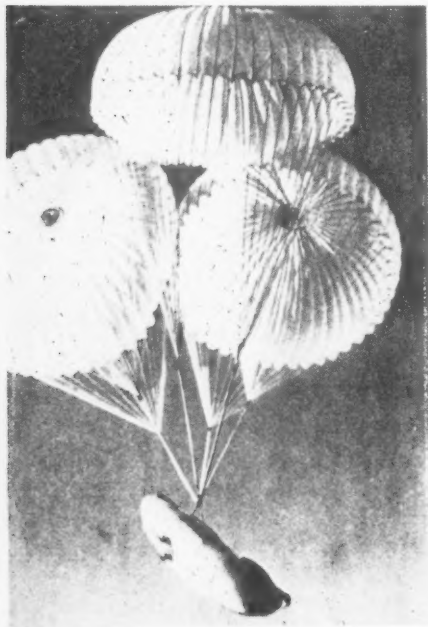
Retriever Service:

The British Army has a Q Branch whose job is to retrieve equipment and matériel strewn over beachheads and battlefields in combat, sort and identify it, and arrange for its return to its owners. This service includes personal effects as well as war matériel.

(*Marine Corps Gazette*)

Airborne Lifeboats:

Developed by the Emergency Rescue Branch of the Personnel Equipment Laboratory, this airborne lifeboat is now in use for sea rescues from the air. Twenty-seven feet



long and weighing over one ton, the boat is secured under the bomb bays of a B-17. It is carried by three parachutes which afterwards submerge and serve as a sea anchor. Powered with two five-horsepower engines and emergency sails, the craft will do eight miles per hour.

(The Illustrated London News)

Rocket Mosquito:

Against land targets the rocket has been mostly in demand for short-range tactical work by day, for which a single-engine fighter was obviously the most suitable aircraft; the outstanding success of the rocket Typhoons against tanks and troop concentrations in the Falaise Gap was a classic sample.

Against shipping, however, longer operat-

ing range, a navigator, more elaborate navigational radio, and the safety of two engines are necessary. Rocket rails have therefore been fitted to several multi-engine types, the Beaufighter and now the Mosquito because of its high speed.

A steady "platform" is necessary for accurate rocket launching because of the relatively low speed at which the rocket leaves the aircraft. The Mosquito, which always attacks in a dive, provides the steadiness that is wanted, and has another good feature in the pilot's excellent view. It carries the usual eight rockets with 60-pound heads—and the lightness of this form of armament enables advantage to be taken of the extra fuel tankage which is a feature of every Mosquito version. The absence of gun weight and recoil are distinct advantages of the rocket projectile over the 57-mm gun carried by other Mosquitoes, although the high muzzle velocity of the shell of the latter greatly aids accuracy. The rocket projectile is ten times as heavy as the six-pounder shell, but fewer of the rockets can be carried, their number being limited by the number of rails that can be accommodated.

A feature of the Mosquito attacks is the confusion caused by the antiaflak firing with their 20-mm cannon shells and machine-gun bullets while the rockets are being launched, giving a very clean sweep of the enemy's decks. The mixed grill is sometimes improved by a few 500-pound bombs and some six-pounder shells from other fighter-bomber Mosquitoes all flying in the same strike force. The cannon-equipped Mosquitoes are fighters in their own right and nasty customers for enemy fighters to tackle.

(Flight, Great Britain)

BURMA

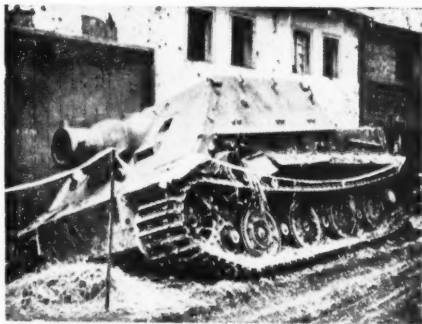
Glider Ambulances:

Indian and East African casualties from the fighting areas on the Central Burma front are now evacuated to base hospitals by gliders left over from the Wingate-Cochrane expedition.

GERMANY

A Huge German Mortar:

The photographs below show details of a self-propelled 380-mm mortar, or howitzer, which was mounted by the Germans on a



fortified Mark VI, or Royal Tiger, chassis. The vehicle was taken in Oberembt, Germany, by an infantry battalion of the 19th Corps of the American Ninth Army.

The front armor of the vehicle is five inches deep and is mounted at an angle of fifty de-



grees. At the rear it is four inches thick. The mortar barrel is seven feet long and is rifled. The base of the shell is fifteen inches in diameter and it is five feet long, weighing 770 pounds. It is loaded into the tank by means of a crane, and then into the breach of the mortar by a hoist inside the tank. There is

Men of the United States Army Air Force today get the sick and wounded out in one hour; previously the 100-mile journey took three days over monsoon-ruined jungle roads, writes an Indian Army observer.

Towed from their base by Dakotas, used for air supply drops to forward troops, the gliders are released over a landing strip only a few hundred yards long, while the tow-plane circles overhead. Half an hour later, when the sick and wounded are settled in the glider, the parent plane circles lower. There is a thud, and the glider is snatched into the air.

Within an hour the glider has once again slipped her tow-rope and glides quietly on to the airfield, where an ambulance is waiting to take the men to hospital.

Apart from the jolt of the forward-area take-off, the glider flight is smooth and restful. The only noise is the rush of wind through the spars, and the patients can look through the windows at the road up which they might have been jolted if they had gone in an ambulance.

The American pilots, provided the weather is good, make this trip two or more times a day. At peak periods they have evacuated up to seventy casualties in twenty-four hours.

(Indian Information)

FRANCE

French Trainer Plane S.10:

A French trainer with a curious history is being produced in the Paris district at a small factory with an excellent record of passive resistance and the quiet but deadly sabotage of German plans. Three prototypes of the S.10 were built under enemy occupation, but not one of them got into the air until the Germans had been driven out. The odd thing about these aircraft was that every time they were made ready for a test flight, some obscure trouble developed at the last moment and they could not take off. As soon as the enemy had been driven out, the S.10 found itself able to fly within a few days.

(The Aeroplane, Great Britain)

no recoil, but a heavy sleeve encloses the barrel. The shell is projected by a propelling charge inside the shell itself, and has the characteristics of a rocket. Its range is believed to be in the neighborhood of 5,000 to 6,000 yards.

Other armament on the vehicle includes one .34-caliber machine gun on the right side (visible in the second photo) and a grenade launcher of 80 to 81 millimeters. Six men are estimated to operate the vehicle. There is no movable turret on top of the tank and it is maneuvered into firing position with the use of the tracks. A Maybach engine powers the contrivance.

A prisoner of war stated that twelve rounds were usually carried inside the vehicle.

(*The Sphere*, Great Britain)

Flak Special:

Our ground forces found an abandoned German train whose function had been to serve as a complete flak site. Boxcars had been converted to provide headquarters, living quarters for the gun crews and others, a kitchen, gun repair shops, and storage for ammunition and supplies. There were four 128-mm flak guns, four 20-mm light flak guns, a predictor-range finder, and two radar sets.

(*Air Force*)

Nets for Protection of Bridges:

To protect the supports of river bridges from floating mines, the Germans used "antimine nets." The nets were fastened to wooden piles having a diameter of thirty to thirty-five centimeters driven into the bottom of the river at intervals of seven meters along the upstream side of the bridge. Each section of the net had a length of fifteen meters and a width (or height) of 3.3 meters, and was made of hard, galvanized steel cables of various thicknesses. The mesh consisted of squares thirty centimeters across.

As an example of the way in which these nets were used, a certain bridge across the Vistula was protected by a net extending from the right bank at a point 250 meters above the bridge to a point beyond the

middle of the river. Another net extended from the left bank 330 meters above the bridge and reached to the middle of the river. Thus the antimine barrier covered the entire width of the river, assuring detention of any water or land mines that might be floating in the stream, at the same time leaving a passage between the nets so that navigation was not hindered.

(*Krasnyi Flot*, U.S.S.R.)

U. S. S. R.

Artificial Fords:

The famed Russian cavalry is proud of its ability to ford and swim rivers, yet its fire power is not always sufficient to meet the combat demands of a particular sector, and the heavier armor and guns must be thrown across water barriers which are too often unbridged and still too deep to ford. Therefore, it is a rather common practice to build artificial fords. Such fords are generally constructed over the flat-country rivers, which if not fordable have sloping banks and are not very deep or swift in current. Low river banks produce variations in the river width, depending on the season of the year, and when they are extremely wide, it is not always expedient to bridge such bodies of water. Thus, where the conditions permit, artificial fords are constructed out of a combination of sandbags and rocks. Sometimes they are built only by hand labor, other times by the use of machinery and heavy equipment. Last year, one Soviet engineer unit built such an artificial ford over a wide river by laying more than 6,000 sandbags and stones in one night. This provided a solid foundation and reduced the water depth so that, on the following morning, a tank force crossed the obstacle, which, the day before, had impeded its progress forward. Artificial fords are not immune to discovery by enemy aerial reconnaissance, but they are not the easiest type of river crossings to discover.

(From an article by Major Robert B. Rigg in *The Military Engineer*)

JAPAN

Japanese Amphibious Tank:

the rudder, is shown standing upright with the stern on the ground.

(The Illustrated London News)



FIGURE 1.
TANK AS USED ON LAND.



FIGURE 2.
REAR OF TANK, WITH PROPELLERS.



FIGURE 3.
THE BOW PONTOON



FIGURE 4.
THE REAR PONTOON WITH RUDDER.

This new type of Japanese amphibious tank was captured on Leyte Island in the Philippines by United States troops. Figure 1 shows the tank as it is used on land. In Figure 2 the tank is seen from the rear end, to which propellers for use in water are attached. The bow pontoon, Figure 3, is attached to the front of the tank and the rear pontoon, Figure 4, is clamped on the back end, making a complete amphibious tank capable of being used for land and sea operations. In Figure 4 the rear pontoon, with

UNITED STATES

Boeing C-97 Transport Plane:

Disgorging cargo from the Boeing C-97, which flew 2,323 miles from Seattle to Washington, D.C., at 383 miles per hour—a record. The great loading doors at the rear of the fuselage are among the new features of this transport airplane. The ramp is self-contained in the plane and electrically operated. Two fully loaded 1½-ton trucks can be driven up the ramp into the airplane with plenty of room left for other equipment or cargo, or two light tanks may be accommodated.

(U.S. Air Services)

A New Weapon—Canned Salmon:

The use of canned salmon as a secret weapon in the aerial war against the bypassed Japanese forces in the Marshalls has been revealed. For months, Marine airmen bombed, strafed, and harassed Japanese forces on Wotje, Mili, Jaluit, and Maloelap. In conjunction with many of the daylight missions, scout bombers and fighters dropped leaflets pointing out the hopelessness of their position and urging them to surrender. In these leaflets, the Japs were told that American forces had plenty of food and that prisoners could expect good treatment. The cans of salmon which accompanied these arguments served as samples of rations supplied prisoners.

(Naval Aviation News)

Seagoing Warehouses:

Seagoing warehouses, complete from cotters to camshafts, now back up the combat and ground crews of the U.S. Army 7th Air Force in the Pacific.

Towed over thousands of miles of water as the AAF moves toward Tokyo, the barges can accompany the amphibious task forces, moving in to service fighters and bombers the moment a base is secured. They are used in the crucial days when permanent or semi-permanent buildings on newly captured bases are being constructed.

An old Mississippi River scow, borrowed from the Navy, was the forerunner of these new floating air depots. Converted into a warehouse, it proved its worth in the Ellice and Gilbert Islands campaigns.

Fully stocked, each barge carries more than 5,000 separate items from the smallest nut to large wing and tail assemblies. A few moments after the compact, two-way radio at the barge's shore station has sent its call for an aircraft part, the item is whisked by a small, powerful landing craft to shore, where it is then relayed to ground crews by jeep.

For loading and unloading heavy equipment, two-deck cranes are operated on power of Diesel engines, which also furnish air conditioning, lighting, and refrigeration.

Crews who man these barges are enlisted men with two or more years of 7th AAF Service Command warehouse training. Other members of the crew include a 7th AAF officer in charge, and a civilian captain who is in charge while the ship is at sea.

(Army and Navy Register)

"Droop-Snoot":

America's "droop-snoot" bomber is a P-38 Lightning modified to lead standard P-38 formations in precision bombings while keeping its speed and high altitude. The "drop-snooter" is a fighter with a combined bombardier-navigator compartment added in its nose ahead of the pilot's cockpit. The plane directs its formation's bombing with accuracy possible at speeds fifty percent greater than the operating speeds of heavy bombers.

(From a news report)

FOREIGN MILITARY DIGESTS

Malaria Control in the Southwest Pacific

Digested at the Command and General Staff School from an article by Major General G. Covell, Consultant Malariologist, General Headquarters (India), in *The Journal of the United Service Institution of India* January 1945.

These impressions were gained during a recent tour in Australia and New Guinea, the purpose of which was to study malaria problems in the Southwest Pacific Area, and to see whether any special measures employed there might with advantage be introduced in the anti-malarial program of the Assam-Burma theater.

GENERALLY speaking, the course of events as regards malaria casualties among the Allied forces operating in the Southwest Pacific Area has resembled very closely that on the Assam-Burma front. In both theaters the malaria rate was excessively high during the first year of operations, and in both the rates have since been reduced to a small fraction of the original figures. In recent months, however, the rates in the Southwest Pacific Area among both Australian and American troops have been very considerably lower than that recorded on our own eastern front.

Among Australian troops, the malaria rates recorded in well-established bases in malarious areas are exceedingly low. Among operational troops the rates have varied greatly according to (a) the degree of anti-malaria discipline maintained, (b) the severity of the fighting, as affecting antimalaria discipline in difficulties of supply, and (c) the scene of operations.

Malaria figures for the American forces in New Guinea in recent months have been even lower than those recorded by the Australians.

The overall rate per 1,000 per week for all forces operating in New Guinea and the adjacent islands is at present slightly less than the overall rate per day recorded in the Assam-Burma theater.

A number of factors, however, have an important bearing on the malaria problem in the Southwest Pacific:

1. Troops are segregated from the local population. The area is comparatively sparsely populated, and any local labor employed is housed well away from any military camp. Local inhabitants who may be living near camps are deported elsewhere. This removes an important reservoir of malaria infection.

2. The absence of long rail and road lines of communications necessitating the maintenance of numerous staging camps in malarious areas.

3. There is only a single malaria-carrying species of mosquito throughout the Southwest Pacific Area, breeding almost exclusively in small collections of stagnant water such as wheel ruts and bomb craters. It is a most efficient vector, but now that its habits have been thoroughly studied it is more easily dealt with than formerly.

4. *The character of the campaign.* With complete sea, air, and artillery superiority there is now less need for dispersion. American troops are usually encamped in compact areas, completely cleared of jungle, with the ground surface flattened out with bulldozers. When landing in enemy territory a location

is chosen wherever possible where no enemy is present, and since there are usually no local inhabitants either, the mosquitoes are not infected with malaria before the troops land.

These factors all tend to make the conduct of antimalaria operations a less difficult task than on the Assam-Burma front, but they are not sufficient to account for the great difference between the malaria ratio in the two theaters.

Two major factors have contributed to the high standard of antimalarial discipline in the Australian Army.

The first is the example set by the Commanding Officer of the 24th Infantry Battalion. He set out to prove that a high standard of antimalaria discipline could be maintained, even when troops are in contact with the enemy, by meticulous and unremitting attention to detail on the part of all concerned. After eleven months in intensely malarious areas in frequent contact with the enemy, the admission rate for malaria in this battalion was only a fraction of that recorded among other units operating under similar conditions in the same area.

This so impressed the GOC [General Officer Commanding] of the brigade that he insisted on a similar regime being maintained throughout the formation, with equally striking results. The example of the 24th Battalion probably exerted more influence than any other factor in convincing the Australian military authorities of the practicability of reducing malaria casualties to an insignificant figure in the field, by maintaining a high standard of antimalaria discipline.

The second factor was the convincing results achieved at the research center at Cairns and the Atherton Tableland regarding the efficacy of mepacrin (=atebrin) in suppressing malarial attacks.

The Cairns experiments proved conclusively that all types of malaria prevalent in New Guinea can be effectively suppressed by administering one tablet of mepacrin daily, *provided the dose is actually taken with unflagging regularity*. Under this regime, all

cases of MT (malignant tertian) malaria are actually cured, provided the drug is taken continuously for at least a month after leaving the malarious area, although BT (benign tertian) malaria will, in a high proportion of cases, relapse when mepacrin administration is discontinued. This type of malaria, however, is completely suppressed so long as the drug is taken regularly *every day*. In the whole series of cases there was no single exception to this finding, even though the infected men were subjected to every conceivable privation during the period of observation.

The great importance of the Cairns experiments was the demonstration that the so-called "breakthrough" of malaria which so frequently occurs, particularly during a period of active operations, is due not to the direct effect of stress and strain, but to the fact that, under such conditions, antimalaria discipline is apt to be relaxed and men will forget to take the drug, unless their training has been such that it has become an ingrained habit.

Two other important points demonstrated in these experiments were (1) that one tablet of atebirin per day can be administered over an indefinite period without harm to the person taking it, and (2) that persons taking this dosage regularly cannot infect mosquitoes which feed on them, so that all human malaria carriers are thereby eliminated from the force.

That the prevention of malaria in the field is a function not of the medical services but of the Command was a point which struck me most forcibly in my conversation with senior commanders of Australian and American armies. They accepted this principle *in toto*. It is realized that the medical services have not the power to enforce the regulations they advocate, and the problem of malaria control is treated on exactly the same footing as the planning of an assault on an enemy position.

Although the regulations in both forces are extremely rigorous, and although military authorities are determined to enforce them with the utmost severity, the occasions

on which it has been found necessary to take disciplinary action are comparatively few.

The reason for this is that both forces have to a large extent reached the ultimate goal to which we are all aiming, namely, the realization by the individual of the effect that malaria can have not only on his own health but on that of the force, and of his personal responsibilities for its control. Antimalaria precautions have become such a fixed habit that they are carried out almost automatically.

In the brigade mentioned above the following precautions were adopted, *in addition to those laid down by the medical authorities:*

1. Education of the individual soldier in the effect malaria can have on the force, and his personal responsibility for its control.

2. The main basis of malaria control and supervision within the unit was parades, roll calls, and reports.

3. Malaria control became a ritual in the unit in the same way as weapon and kit inspections and parades. *This can and must be done in battle, just as it is in training camps.*

4. Every subunit commander was responsible, each night, to inform his next higher commander that his command had carried out the malaria precautions. Subunit commanders can be liars, but it affects their conscience to be liars *every* night.

5. A daily study of malaria evacuations was made by the brigade commander. Charts were kept, and action taken immediately any increase was shown.

6. All individual cases of malaria were investigated. The close cooperation of the field ambulance by questioning the patient at times disclosed a laxness in a subunit. Immediate action was then taken, the section, platoon, and company commanders of the individual concerned reporting personally to the commanding officer.

7. Operationally, the view was taken that in the main at least two-thirds of the force could use nets, even in contact, at night, the remaining third being on protective duties. There were several occasions when contact

was so close throughout the night that the use of nets was not possible.

8. All patrols were briefed regarding malaria control and were interrogated on their return. The patrol commander, in his written report, stated the malaria precautions taken, a paragraph being included in every patrol report. Nets were always carried on patrol so as to be available. There are few patrols which cannot use nets. No sane reconnaissance patrol bivouacs so close to the enemy that nets cannot be used—due allowance being made for the necessary protective personnel. It would be expensive in manpower to send out a patrol of, say, ten men on a four-day patrol and lose fifty percent from malaria casualties.

9. In all operation orders and instructions, malaria control was always dealt with. *It was invariably considered as part of the operation, and never allowed to be overshadowed by the operation.*

Some of the main points emphasized in this brigade are these:

Commanders must realize the necessity for conserving manpower by the maintenance of health.

Precautions laid down for the prevention of tropical diseases must be adhered to.

Ensure that every man accepts his individual responsibility for the control of malaria, and understands the effects malaria may have on the fighting force to which he belongs.

The responsibility of constant supervision must be realized by every officer and non-commissioned officer from the commanding officer downwards. Supervision on an organized disciplinary basis has proved to be most effective.

Realize the human frailties when the flesh and spirit is weak from long campaigning, and take extra measures to combat any laxity in malaria precautions.

Investigate every laxity relentlessly. Pursue the inquiry until the individual responsible is found. One careless, inefficient officer

or noncommissioned officer may be the cause of innumerable casualties.

Don't let the "operations" bogey lessen the vigilance on malaria and other precautions. Far more casualties will come from malaria

than from Japs. Malaria control should become part of the unit battle drill.

Study figures and charts. These tell a story, and from them the commander can most likely put his finger on the weak spot.

The Art of Encirclement

Translated and digested at the Command and General Staff School from a Russian article by Major B. Korol in *Krasnaia Zvezda* (Red Star) 2 December 1944.

THE Red Army has carried out a number of encirclement operations which have influenced decisively the course of the Patriotic War and have considerably advanced the modern military art. In addition to the encirclement of separate enemy groups and garrisons, the Soviet troops have also undertaken large-scale encirclement operations encompassing considerable areas.

The method well worked out and mastered by the Red Army is that of the double envelopment and encirclement of large masses of enemy troops under the conditions of the continuous front. Each encirclement operation is carried out, as a rule, on a broad front and is a culmination of a series of successive operations. The wedging into the German lines is carried out in widely separated sectors. At Stalingrad, for instance, the enveloping wedges driven into the German defense were 300 kilometers apart; at Korsun-Shevchenkivskii, about 200 kilometers; at Kishinev, about 300 kilometers.

The blows inflicted in various directions disperse the efforts of the enemy, prevent him from regrouping his troops (especially tanks), and, what is more important, result in the commitment of his operational reserves, which is the general prerequisite of the maneuver of encirclement. It should be noted that many a time the enemy reserves have also been caught in the encirclement operations. Such was the case in the Yassy-Kishinev operation.

In our large operations, we always exploit the element of surprise. The general direction of the attack is chosen so as to take the enemy unawares. Such was the case at Stalingrad.

At Korsun-Shevchenkivskii, the enemy thought that the troops of Marshal Koniev were to attack to the southwest, but all Marshal Koniev's preparations were carried out secretly, and that is what misled the enemy. Surprise is also effected by the advance conducted on a broad front, when our troops strike a series of diversionary blows. In none of the encirclement operations did the enemy manage to determine the direction of our main effort. He found it out only in the course of the battle when it was too late.

In all offensive operations, and especially in encirclement operations, Soviet commanders achieve a high tempo of action, which is of primary importance in modern warfare. The breakthrough is the organic part of the encirclement operation, and the tempo of the maneuver for encirclement depends on the tempo of the breakthrough. This relationship is the most characteristic feature of the present war.

The Red Army breaks through German positional defenses with unusual rapidity. In the breakthrough sectors, we concentrate large masses of artillery and aircraft, which helps the infantry and tanks overcome rapidly the enemy's main zone of defense. Everywhere we have overwhelming superiority in artillery. In the Yassy-Kishinev operation, in the sector of the Third Ukrainian Army Group, we averaged about 230 guns and heavy mortars per kilometer of the front, and were faced with thirty to forty German pieces.

Each of the enveloping wedges is driven into the German line on a broad front—the breakthrough sector is seldom less than thirty kilometers wide. Attacks of varying strength

are then launched within this sector. The bulk of matériel and equipment is concentrated within small areas under concealment which is achieved by proper camouflage and feints. The secrecy in concentrating overwhelming forces within small areas, combined with broad breakthrough sectors, constitutes the basis of tactical surprise.

Mobile units are often committed before the breakthrough area has been cleared of the enemy. These help complete the breakthrough of the defenses in order to outstrip the operational reserve of the enemy and complete the planned encirclement maneuver. Such was the case, for example, in the encirclement of the German group near Korsun-Shevchenkivskii. Here the tanks of Marshal Rotmistrov and the cavalry of General Selivanov withstood a short, fierce battle in the very gates of the breakthrough. They fought with the vanguard of the German tank force rushing to the rescue of their troops. Had our mobile units delayed engaging the enemy until the breakthrough area had been completely mopped up, they would have been forced to fight not the forward elements of the enemy tank unit but the bulk of its forces. That is why the echelon effecting the breakthrough should closely cooperate with the mobile troops assigned to the exploitation.

Mobile troops try to avoid protracted engagements, and the whole operation is planned so as to prevent these troops from engaging with counterattacking enemy groups. Our tanks and cavalry, moving toward the points the occupation of which will complete the *operational encirclement* of the enemy group, boldly bypass his centers of resistance and retiring columns, or attack them from march formation. Establishing skilful cooperation, our command repels enemy counterattacks employing troops especially assigned for this mission, and takes advantage of the high mobility and maneuverability of our artillery.

A distinctive feature of all the encirclement operations is the definite sequence of committing to battle the elements of the battle formation. We always strive for a constant increase in the intensity of attacks in the main direction. This engages all enemy troops and,

what is more important, his mobile forces which attempt to block the route of our tanks and cavalry executing the maneuver of operational encirclement. The adherence to the definite sequence in the commitment of the echelons secures the rapidity of the encirclement. Due to this and because of the flexible control of and the skilful cooperation among all arms, the enemy is subjected to a simultaneous action from the air and from the ground throughout the depth of the operation.

The speed of advance of our tanks, motorized infantry, and cavalry in a maneuver for encirclement has often attained fifty kilometers a day. The encirclement of von Paulus' army at Stalingrad was completed on the fourth day after the breakthrough. In the Yassy-Kishinev operation, our mobile units covered from eighty to 110 kilometers, averaging from twenty to twenty-five kilometers a day. The encirclement of the Bobruisk group was carried out within two days of the breakthrough. The tanks of General Panov covered one hundred kilometers with the average speed of forty-five to fifty kilometers a day, while the German force east of Minsk was encircled on the ninth day of the offensive in White Russia. The mobile troops of the Third White-Russian Army Group had covered during this period about 250 kilometers, i.e., twenty-five to thirty kilometers a day.

Thus, having secured a quick breakthrough of the defense, we execute a rapid maneuver for encirclement, employing mobile groups composed of tanks, motorized infantry, and cavalry, while our aircraft is dominating the air.

The mobile troops are steadily followed by units of all arms. The distance separating the infantry and artillery from the tanks and cavalry is seldom more than one day of marching. *Once the enemy has been caught in the prongs of the encirclement pincers, the density of our battle formations increases rapidly.*

The art of this rapid strengthening of the battle formations accounts for the fact that no matter how furious the Germans may counterattack, they do not succeed in breaking

out from the ring of encirclement, and their counterthrusts from the outside invariably fail.

The rapid strengthening of the battle formations also enables us to shift immediately from the *operational* to the *tactical* encirclement [literal translation]. As soon as the ring of encirclement closed around the Kishinev German group, the bulk of our infantry and artillery joined in, started a concentric attack, and split up the surrounded group.

The narrowing of the ring and the splitting and rout of the encircled enemy constitute in all our operations one inseparable process, calling for exceptionally precise cooperation. As the methods of simultaneously tightening the ring and splitting the encircled forces improved, the tempo of liquidating such groups increased. Thus, the bulk of the German Ninth Army at Bobruisk was encircled on 27 June, and by 29 June the encircled troops had been either killed or captured.

The German Offensive in the Ardennes

Digested at the Command and General Staff School from an article by Major E. W. Sheppard, OBE, MC, in *The Fighting Forces* (Great Britain) April 1945.

IN mid-November 1944, the Allies, having opened up the Schelde and secured the use of Antwerp as a base port, were in a position to resume the offensive towards and into Germany, (see sketch). The aim of the British Second Army was to clear the enemy from the districts west of the Roer, while the American Ninth and First Armies on its right resumed their attempts to penetrate the Siegfried Line east of Aachen.

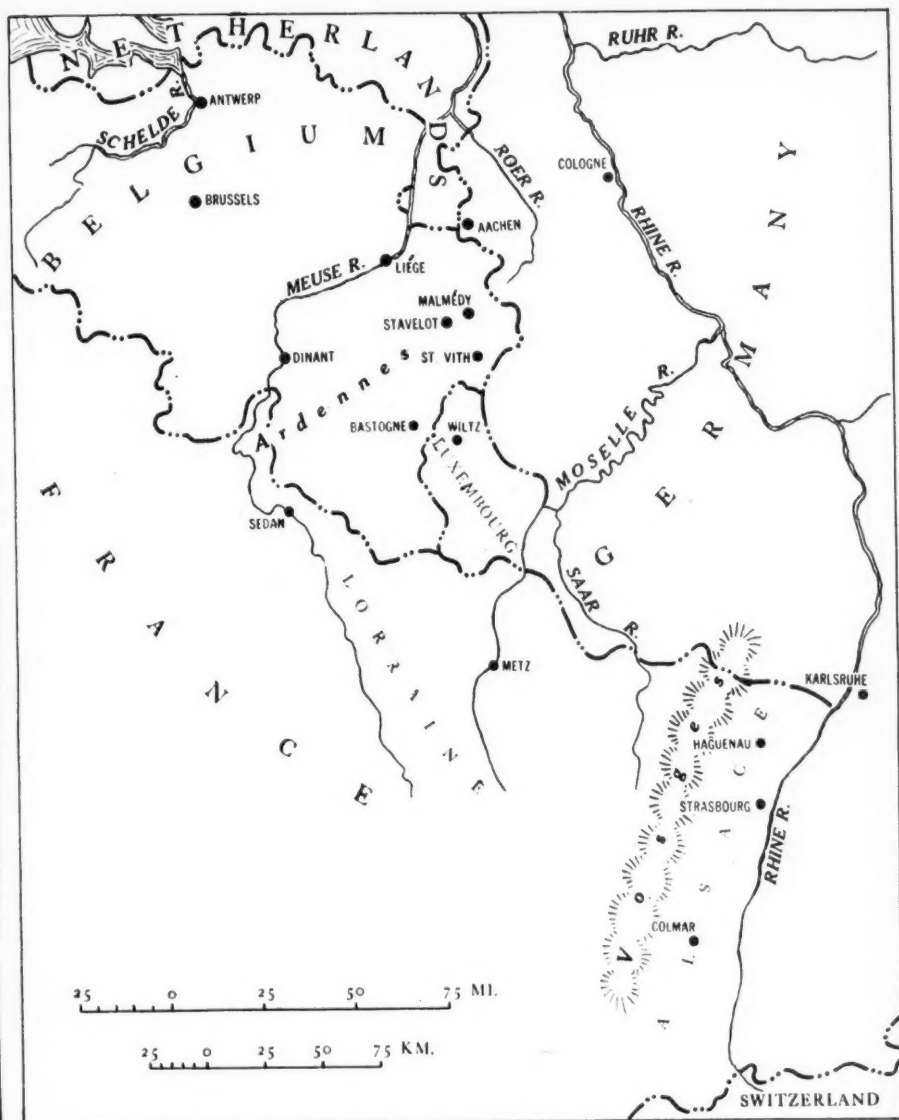
All these armies could make only slow headway under unfavorable conditions of weather and ground and against a tenacious hostile resistance in deep, well-designed defenses. By the beginning of December they had been bogged down, and the northern part of the front had become practically stabilized.

Farther south, however, where the U.S. Third and Seventh Armies and the First French Army were in action, much more important and rapid progress was made. The great fortress of Metz was surrounded and captured, and along the whole front from the Rhine to the southeastern corner of Luxembourg the German frontier area was reached, while the Allied line was pushed forward to the Rhine along the greater part of the stretch from the Swiss border to opposite Karlsruhe, though the enemy still retained a large bridgehead on either side of Colmar extending westwards deep into the

Vosges, which was later to give us a good deal of trouble.

Meanwhile, however, the Germans were fast recovering from the effects of their heavy defeats of the summer and autumn. They had recreated a considerable reserve and had re-armed and re-formed their panzer divisions with two new and formidable types of heavy tank. The Luftwaffe had been carefully economized, and now, with its new jet-propelled aircraft, bade fair to be once more a formidable fighting force. A certain number of the newly raised Volksgrenadier formations had been made available to take over quiet sectors of the front. The Germans, in fact, now had it in their power to pass from defense to attack, if they so chose.

The plan was to launch a surprise offensive in the Ardennes as soon as the weather proved suitable. Under General Model's command, the reconstituted Seventh German Army and the Fifth and Sixth SS Panzer Armies, comprising twenty-four divisions, of which ten were panzer divisions, were allotted for the task. Their mission was to reach the Meuse in the stretch between Liège and Sedan within forty-eight hours, and thence to drive a swift-moving and powerful armored wedge forward to Antwerp, which it was hoped to reach within three weeks.



The ultimate purpose, presumably, was to secure and hold that city, so cutting off the thirty-eight divisions of the four Allied armies in the north from the three armies in the south, and depriving the former of their base and lines of communications. If this could not be done, it was hoped at least to wreck the port so thoroughly and effectively as to render it useless to the Allies as a base for many weeks to come.

These were certainly ambitious designs, and it is doubtful if, even under the most favorable circumstances conceivable, there was any possibility of their realization.

Nevertheless, the offensive gained considerable ground in the first few days. Weather conditions prevented the Allied air forces from operating against the German panzer units, as they had done with such devastating success at Avranches in July, and the new heavy German tanks were difficult to deal with, outmatching the Allied machines as they did. A number of the small American garrisons in this thinly held and hitherto inactive area were isolated and bypassed; some were overrun and others compelled to carry out an adventurous retirement.

Several of the larger ones, however, held out defiantly, and the resistance at such places as Wiltz, St. Vith, Stavelot, Malmédy, and particularly at the important nodal point of Bastogne, so slowed up and disorganized the Germans that by the time their leading panzer units were approaching the Meuse valley in the Dinant area, not only was American armor there to head them off but strong infantry forces sent down by Field Marshal Montgomery from the British Second Army in Holland were guarding the river line itself.

Meanwhile, mobile units of the U.S. Third Army had also been rushed across from Lorraine to strike at the southern flank of the enemy salient and regain contact with the airborne troops holding out in isolation at Bastogne.

By these means the rate of progress of the German assault was gradually slowed down and finally stopped. Then began the slow process of recovery of the lost ground.

Field Marshal Montgomery, in temporary command of the First and Ninth U.S. Armies as well as of his own two, was now conducting the battle in the north and center, while the American General Bradley remained in charge of the operations on the southern side. Under their guidance the jaws of the Allied pincers inexorably closed in, but only so gradually as to permit the hostile force gripped between them to extricate itself without any spectacular loss of men or material.

During the course of the battle, Rundstedt carried out several probing or diversionary attacks elsewhere, on the Saar front, in the frontier area about Haguenau, and north and south of Strasbourg; but though the Allied advanced posts were pushed back, no opportunity for converting any of these into a large-scale diversion apparently offered itself, for the fighting remained on a minor scale only, and the Allied forces were able to retain their main positions.

By the date of the launching of the great Russian winter offensive, which turned all eyes from the west to the east, Rundstedt's former sixty-mile-deep penetration in the Ardennes bulge had shrunk to a strip of territory extending only some twenty miles to the west of the line from which it had started a month earlier. By the end of January it had been completely liquidated, and the contending forces were back where they had been when the German attack began.

The Allies estimated the total German casualties in December and January at 220,000, of whom 110,000 were prisoners. About 1,450 tanks and assault guns and about half the tanks of the Fifth and Sixth Panzer Armies were destroyed. Most of these losses were presumably suffered in the battle in the Ardennes, in which the Allied casualties had been some 55,000 only. Over twenty American divisions fought in the battle from first to last; only a single British corps had been engaged, and its losses had been small.

Current views and criticisms of the battle seem to have been based on certain misconceptions. The belief that the Allied armies at the time of its outbreak enjoyed a great numerical superiority over the enemy appears

to have little foundation in fact. Rundstedt had at his disposal some seventy divisions and, to judge from the details officially announced, the number of Allied divisions was then little, if at all, in excess of that figure.

The Allied air forces certainly had full air supremacy, but under winter conditions, such as those prevailing during the greater part of the battle period, this ascendancy lost much of its effectiveness. On the other hand, the enemy's new heavy tanks were, for the purposes of a breakthrough battle, better than anything we had to put against them, and in this respect, therefore, we fought at a constant disadvantage. On the whole, it is probable that as regards fighting power on the ground, the opposing armies in the Ardennes were reasonably well matched, and only on occasions could the Allied air superiority make itself felt.

Again, a contrast has been somewhat unfairly drawn between the Allied strategy of attacking all along the line, and Rundstedt's of making a heavy thrust on a narrow front. The Allies, in fact, were not in sufficient strength to exercise pressure all along the line, even had it been desirable or wise for them to do so; they concentrated their efforts against the most sensitive sectors of the German front, those covering the Ruhr and the Rhineland, and they also continued with their efforts to complete the liberation of Lorraine and Alsace, which had been held up by supply difficulties prior to the opening up of Antwerp. It was necessary, in order to make these attacks as strong and effective as possible, to economize forces on inactive sectors, of which the Ardennes was the principal one. Here what General Bradley called a "calculated risk" was taken in the belief, possibly, that a German counterattack here was improbable, and that even if delivered, it was unlikely to achieve any important success. This last proved to be a well-judged forecast; nothing of vital value would be lost unless the enemy could not only reach but cross the Meuse, and in the event he was held up just short of it, thanks to the stubborn valor of the comparatively small American forces holding the area under attack and the swift

and well-thought-out countermeasures taken by the Allied commanders. In the final result, the Allies secured a highly satisfactory balance of comparative battle casualties, and all the enemy's gains of ground had quickly to be relinquished once these countermeasures began to take full effect.

In view of the final result of the battle, it must be considered questionable whether the Germans were wise to embark upon it at all. If, as seems likely, the decision to do so and the general battle-plan were Hitler's own, and Rundstedt's responsibility was confined merely to carrying out the plan laid down for him, it must appear that the plan erred on the side of overoptimism and set the German Army a task which proved beyond its powers. That the Meuse could be reached and perhaps crossed was a reasonable assumption, which was only falsified by the fine fighting of the American troops; but it is difficult to believe that, even on the assumption that this could and would be done, the project of a further thrust to Antwerp was anything but the baseless "fabric of a dream" of an amateur strategist. It is doubtful if Rundstedt himself—who called the offensive "an all-out gamble"—ever had any great faith in its success.

Apart from this, it must be admitted that he and Model fought their battle well and competently, made the most of their chances, and gave the Allies some "bad quarters-of-an-hour" from time to time. On the whole, however, the Germans certainly came off considerably the worse from their enterprise. Against the disarrangement of the Allied plans and dispositions for their spring offensive, which could hardly have been scheduled to take place before mid-February at the earliest, and the capture of a certain quantity of munitions, material, fuel, and stores, which in view of the fact that the Ardennes area was held as an inactive sector can hardly have been large, there have to be set the heavy losses in men and tanks suffered by the Germans, the depletion of their strategic reserves at the moment when heavy calls were about to be made on them for help for the Eastern Front, and the bad effect on morale,

both military and civil, of the complete loss of the ground initially gained by an offensive publicly announced as being Germany's last great effort to snatch victory from the jaws of defeat.

History, in fact, will probably ratify Mr.

Churchill's view that the end of the war and the Allied victory was brought nearer rather than postponed by this battle. Should this prove correct, this fact alone must condemn as a strategic error the German decision to embark upon their Ardennes offensive.

Modern Strategy

Translated and digested at the Command and General Staff School from a Spanish article by Colonel Jose Hizar in *Ejército* (Spain) March 1945.

Up to the time of Frederick the Great, studies of the military art drew no distinctions between tactics and strategy. Thus, since the time of Xenophon, tactics had been defined as "the art of assuring liberty to the people and the state." But the victories of Frederick impressed the minds of men, impelling the authors of treatises to reflect on the wherefore of these successes, and the Archduke Charles wrote the first treatise on strategy at the beginning of the Nineteenth Century, defining it therein as the "science of the commander in chief."

It was between the beginning of the Nineteenth Century and the era of great inventions and heavy industry, which have been of such influence since the last quarter of the past century, that the modern concept of strategy began to evolve. Military studies, however, dealt solely with the military aspect of the matter, and, according to Clausewitz, strategy was "the employment of combat and its relationship with the objectives of war."

But the war of 1914 came on and its realities made apparent the necessity for including in military studies politics and economics. This meant taking the state into account with the totality of its population, its moral and material values, and its production ability—which is really the modern concept of total war. Strategy has thus reverted to the ancient concept of "the science of security and national liberty," as Bülow defined it in 1879, and it was raised to a place above that of the previous concept of military strategy. Thus was born general strategy, which is a set of principles by

means of which the lives of the state and its inhabitants are insured.

General strategy teaches the collaboration of the various national forces (political, economic, and military forces) for the solution of strategic, or military, problems. It comprises, therefore, the partial strategies of each of the national forces. Its relation to military strategy is the same as may exist between general tactics and one of the particular branches of tactics peculiar to each of the various arms.

The object of war is the moral and material disorganization of the enemy, with the following means employed for the achievement of this end:

1. The destruction of the armed forces of the enemy by means of rapid maneuvers and action in which effort is made to hamper and delay their movements.
2. Destruction of the principal elements of the enemy's economic force, as factories, stations, etc., by means of violent action.
3. Interference with the flow of his supplies, especially those which arrive by water route (by means of blockades).
4. Demoralizing the enemy by violence (aerial bombardments) or political forces (propaganda).

All these must be combined. Therefore, command, which today possesses more numerous and varied means of action than in the past, has become more complicated and difficult. But its role is a supreme one.

From what has been explained, it can be deduced that there are three factors on

which general strategy has to base its decisions, namely, potential military strength, potential economic strength, and potential moral or political strength.

The combination of all of these constitutes the war potentiality of a country, which is, in short, the degree of aptitude it possesses at the particular time and the rapidity with which it is able to adapt itself, if need be, to the necessities of war. This concept, as is evident, is a concept of the moment or, at most, one of an immediate future, and therefore it is subject to revision.

Now let us examine the combination of these factors. "Every struggle, whether it be between states or individuals, has common grounds," says Clausewitz. Hence, just as in combat it is necessary to divide forces into three fundamental parts, it is necessary to act in the same manner in general strategy.

The state establishes a vanguard which finds out the strength and intentions of the enemy. At the same time, the strength and intentions of its own forces are concealed from the enemy, and this assures an advantageous position for the main body of forces for the moment when they go into action. This is the role of political activity.

The main body of forces acts then in such a manner as to compel the enemy to employ all his reserves, at the same time assuring a good base of departure for their own reserves. This role belongs to the armed forces, which hurl themselves into the fight, continuing the struggle begun by political activity.

The reserves which are to throw themselves on the enemy with absolute superiority at the decisive time and place in the struggle are represented by the economics of the country, since a powerful economic system will permit the maintenance, without decline, of the combat strength of the army.

Lastly, pursuit with mobile forces is necessary in order that the enemy may not reorganize his troops in any other position in his rear areas and offer resistance again. The last traces of his resistance must be wiped out, and this is done by the political forces.

STRATEGIC MANEUVER

Before speaking about this, I shall define a few concepts.

Combat Limits.—The strategic front of military strategy used to be, for each belligerent formation, the line which joined the various strongpoints, such as fortifications, natural lines of defense, etc. This concept has been modified today since these limits have gained enormously in extent owing to aviation and tanks. It was thus in Poland and France where in reality these limits were constituted by areas of great depth, and they are still more accentuated in the Pacific.

In general strategy, it is necessary to augment even this concept, including in it the frontiers of neutral countries assisting us with all the non-military means which at the same time are denied the enemy. For this reason, even this broad concept enters the category of combat limits.

War Limits.—This is a more universal idea than the foregoing. The war limits are constituted by the zones where the strategic forces of the states may meet one another. This includes not only the armed but also the political and economic forces. They represent, therefore, not only the *combat limits* but also areas of economic or political struggles. That is to say, they extend to the neutral countries which it is necessary to dominate.

Because of the economic interdependence of all countries, this politico-economic struggle has resulted in the expansion of the areas of war and the tendency toward world wars only.

Maneuver.—Just as in general tactics the aim is to combine the various arms in accordance with their particular tactics and in accordance with a certain situation (determined by the mission, the means available, the terrain, and the enemy), and in military strategy, to combine armed forces capable of carrying out independent actions, in general strategy maneuver is effected by means of campaigns in which military forces

are combined with political and economic forces.

DECISIVE FACTORS OF THE STRATEGIC MANEUVER

Among the principles of military art, all of which are applicable to general strategy, it will be profitable for us to examine two, because of the influence they exert on it and the special form they assume. These are combined action and surprise.

Combined Action.—In tactics, all arms have to support the infantry, which is the arm that, in the final analysis, effects the occupation of the enemy territory and brings it into submission.

In general strategy, all the forces of the state aid the armed forces. The political forces do this by trying to create favorable attitudes in neutral countries, thus providing Allies and new sources of economic supplies. Nevertheless, once the war has started, the success of the political effort depends largely on the success of the armed forces, which sways the minds of the neutrals.

Just as the political forces provide the spiritual energies for the struggle, so the economic forces provide the materials, and from this combination, when well managed, there springs, through the art of general strategy, the military superiority of one of the two sides, which will be the one that will conquer.

Surprise.—This influences the enemy in accordance with the degree to which it upsets him, and is achieved through the instrumentality of an unexpected element relative to time or place.

Thus, in 1914, although France and Germany mobilized an equal number of men (France six per cent of her population and Germany four percent of hers), the latter dispatched immediately to the front two-thirds of all she had mobilized, and France, only half. Strategic surprise was thus achieved, for the Allies had not expected Germany to put reserve corps on the fighting line at the very outset.

Also the employment of gases and super-cannon by the Germans and tanks by the English were surprises, all of them strategic

surprises of a military nature because of the means employed.

Surprise was also produced in 1939 when the western powers did not believe that Germany had at her disposal the abundant modern equipment with which she began the campaign, equipping a great number of large units with it. This, although it also possessed the character of a military surprise, was eminently an economic surprise, since the enemy considered Germany incapable of producing the said matériel on account of the weak economic condition they supposed she was in.

The factor of speed contributes to surprise from the point of view of time and permits action against one's adversary when he is still unprepared. In the general aspect in which we are considering it, the actual strength and potential strength of each side must be taken into consideration.

Actual strength is the forces that can be put into action at the beginning of the war. These enter into the sphere of military strategy and necessitate previous plans of mobilization and concentration. They include:

1. The forces in existence in time of peace and the reserves who had military training.
2. The war equipment in the possession of the units that are in existence in time of peace, and that which is at their disposal in parks and supply depots.
3. Fortifications.

Potential forces must be converted into actual forces in order to attack the adversary with their full weight before the latter has had time to prepare his own. They are composed of:

1. The remainder of the manpower of the nation, taking into account the fact that the training of the soldier requires a minimum of six months' time and the training of a division requires a year, and that the personnel which is to do the work has to be provided.
2. The equipment that is not included with the forces already in existence, and all the resources which serve in the manufacture of war supplies.

3. The geographical position, distance to colonies, and ease of communication with them.

4. All means of communications.

5. The time required by industry to change from the economic status of peace to that of war. This transformation and the series production of armament cannot be brought about in less than twelve to twenty months' time, and this only in the case of countries like the United States with industry in an advanced stage of progress.

All this, as can be seen, is very complex and appertains to the order of general strategy for the reason that potential military and economic forces must intervene. Their action develops in four periods, as follows:

1. The deployment of the elements already in existence.

2. The clash of the forces which are the strategic vanguards in the military sphere, in order to pave the way for the intervention of all the armed forces.

3. Mobilization of the potential forces.

4. The decisive clash, with the entire military strength.

During the war of 1914-18, the first period lasted for two weeks (mobilization and concentration); the second period included the four months that passed till the beginning of trench warfare; the third comprised the years 1915, 1916, and 1917; and the decisive clash occurred in 1918.

As is evident, it is well to reduce the duration of the third factor for the purpose of shortening the duration of the war and for the purpose of anticipating the enemy in the final clash. This gave rise to the conception of "blitz" warfare, based on the accomplished mobilization of the greater part of the potential forces at the beginning of the war.

In anticipation of the fact that an adversary might pursue this course and succeed in obtaining a quick decision in his favor, there was developed the idea of the famous fortified lines (Maginot, Siegfried, Mannerheim, Metaxas, Stalin) which were to play the role, in an improved form, of the trenches

of 1914, permitting the gain of necessary time for the mobilization of the potential forces in those countries which are not separated from their possible enemies by a great obstacle such as exists in the case of Great Britain, the United States, and Japan.

PLANS OF WAR IN 1914 AND 1939

A comparative study of the plans of war of 1914 and 1939 reveals, in the first place, that the German political vanguard in the latter case succeeded in coming to an understanding with Italy and Russia without revealing Germany's intentions, in consequence of which she was able to carry out her political policies.

The entire strategy of the Allies consisted in a repetition of that of 1914, a blockade of the Germans.

The vanguard mission which France had in 1914 corresponded in 1939 to the mission of Poland, who would wage the battle of the frontiers of the other war and would withdraw to the line of the Vistula, which would play the role of the Marne, in order to make a stand there at least till the spring of 1940. The main strategic role, which in 1914 fell to the lot of Russia, would, in this war, correspond to the role played by France, who would mobilize and concentrate all the forces at her disposal back of the Maginot Line.

England, with her powerful economic system, would constitute the reserve forces, and while Germany was wearing her forces down on two fronts, England would complete the mobilization of her potential forces.

This plan failed of realization. Poland failed in her role as vanguard for the reason that Germany hurled at her the great military might she had accumulated before the outbreak of the war and, when the Allies attempted to establish air bases north of the German coast and cut off Germany's supplies of minerals and lumber from Scandinavia, the Germans upset their plans with the audacious strategic maneuver of April 1940, when they occupied Norway.

When the Allies attempted a fairly leisurely occupation of Belgium and Holland in the belief that Germany had been weakened by previous campaigns, the latter surprised them

with her attack of 10 May 1940, the result of which was the brilliant "blitz" campaigns in Holland, Belgium, and France, which in the course of twenty-four days succeeded in annihilating thirty French divisions, forty Belgian and Dutch, and ten English, capping it off on 4 June with the Dunkirk disaster in which 300 of the 800 boats prepared for the transportation of the English were sunk.

On 5 June, there followed the advance on Paris. France was still confident that her rear was secured by the Mediterranean Squadron and her North African colonies. But Italy's entry in the war on 10 June was an additional strategic blow which determined the downfall of France. On 17 June she requested an armistice.

Plans of war had to be revised, for the bases on which they rested had changed fundamentally and Great Britain was forced to change her strategic plans. She had no other recourse at that moment than to turn to America for help, though she was obliged to pay cash, in part from her gold reserves, foreign exchange, and securities, and in part by the cession of bases.

The limits of the war had increased considerably, but the principal theater of operations continued to be Europe. Therefore, in the Far East there was necessitated a mere political defense and an economic retreat without any military action.

In the Near East, Asia Minor, and Africa, there was required a solid military defense against Italy, accompanied by an intense political and economic campaign in preparation for a counteroffensive when the Italian attack should lose its force.

In Europe it was necessary for Great Britain to reinforce the blockade against Germany with the help of the United States, attempting at the same time to gain aerial superiority with which she would compel the air forces of the Reich to pass over to the defensive. When this had been accomplished, her political forces would initiate a great propaganda offensive which would undermine German prestige and German spirit in Europe.

The first part of the plan failed because the English political maneuver of alliance with the United States was met by Germany with the Tripartite Pact signed on 27 September 1940, and the entrance of Japan into the war in December 1941 forced England to adopt military measures in the Far East, leading to the disaster which culminated with the loss of Singapore.

This, combined with the catastrophe of Pearl Harbor and the series of Japanese advances in the Pacific which followed in 1942, may be considered as a critical point of the present war. Up to this point, German strategy had pursued its chosen course, setting the rhythm of the war, determining the fields of battle and the times of action. The maneuvers of the strategy of Germany and her allies had been more rapid than those of her enemy in all three components, military, political, and economic.

From the last months of 1942 on, new factors appear in the British plan:

1. The achievement of the mobilization of the potential forces of the United States.
2. The loss of effectiveness on the part of the German submarine, giving greater liberty in the employment of the forces of the United States which had been mobilized.
3. The change in the course of the war in Russia, where Germany had won a series of brilliant victories involving strategic errors of a military and political nature which had caused her to begin a retreat after the fall of Stalingrad (February 1943).
4. The loss of Germany's Italian ally which, in addition to the political repercussion, caused her to withdraw forces that she could have used on the Eastern Front.
5. The paralyzation of the Japanese blows through lack of sufficient elasticity to continue in her enterprises.

This life-and-death struggle is still in progress [March 1945] and there still continue to operate in it the three strategic factors we have discussed and which will give victory to the one who is able to hold out the last quarter of an hour, achieving the absolute superiority that is the resultant of all three factors.

Intelligence and Training

An article by Colonel D. B. Hogg, CBE, in *The Army Quarterly* (Great Britain) April 1945.

WRITERS in this journal and elsewhere have often referred directly or by implication to the lessons we have learned from the enemy—both German and Japanese. These lessons—now turned to good account by British brains and valor—have helped to produce an army with a capacity for the blitzkrieg unequalled by the forces of Reichenau, Guderian, and Rommel. Nevertheless, the learning of them, and the subsequent changes in our own organization, equipment, and training methods have been an expensive and laborious process. The object of this paper is to suggest a means of curtailing this process in the future.

The lessons we have learned are not merely the climax of what the pompous might call "the natural evolution of military thought." They are the fruit of intelligence collected before and during the war and of hard experience in battle. It is now contended that intelligence properly studied and presented in peace can save much sweat and blood in war.

It is a commonplace that intelligence must, in the widest sense, be fought for, and intelligence staffs have long since learned just how much and how little can be obtained in time for it to be of use to their commanders. The latter would probably admit that they have been on the whole well served. Alamein, the North African, Sicilian, and Normandy landings could scarcely have gone so smoothly without the "information" on which they were planned and carried out: the enemy order of battle and defenses, estimated rates of reinforcement and the routes by which they would move—these are some of the more obvious items required.

The provision and assimilation of this "factual" or planning information is now well understood, and the means for obtaining it easy to calculate. But there is a vast amount of other information, concerned directly or indirectly with enemy organization and methods, which has a training value somewhat difficult to assess and to present. This is true at all times, but particularly so in

peace, when the "enemy" is not so clearly defined and the tasks of our own army are multifarious. Nevertheless, it is not impossible to foresee future developments and to train troops to meet them. Waste of effort can be avoided if the relevant intelligence is planned, provided, and distributed with an eye to its training value.

While the Intelligence Branch of the General Staff is now recognized as being something better than a necessary nuisance in war, "Intelligence" in peace is apt to be thought of as the playground of secret organizations entirely divorced from the needs and realities of war. This is not so, but may be sufficiently near the truth to make the ordinary soldier somewhat sceptical of "Intelligence" about a foreign army, as being the product of a crank without military training. He is inclined to question the value of observations—produced, as he believes, by a gentleman in dark glasses watching German troops marching down Unter den Linden.

We are not concerned here with the way information is obtained but with the way it is presented. Once commanders and training staffs recognize that the collated intelligence on foreign armies accepted and issued by the War Office is the product of trained soldiers, much has been gained. Next comes the problem of selecting and using as a basis for our own training such items of this intelligence as can profitably be applied to our own troops.

Intelligence work always involves much sifting and sorting, and the tendency of Intelligence personnel to leave too much of this to their readers is perhaps a legitimate charge against them. The normal requirements of their many users, service, political, and economic, are apt to conflict or overlap, and proper presentation is not always easy. For military training purposes their task can be clearly defined. Reports of changing organization and—more important—the reasons for it, of changing equipment and the use for

which it is intended, and of tactical and training methods practised by the foreign armies concerned must be examined. To obtain the best value from such examination, it should be done ideally by Intelligence officers who know as much about our own army and its training problems as about the enemy's. Alternatively, a section of the training staff should specialize in the study of such intelligence. Officers nominated for attachment to a foreign army must be properly briefed before they go and be thoroughly cross-examined on their return by Training as well as Intelligence staff officers before they write their report. They are a valuable source of information and must be properly exploited.

The resulting notes, pamphlets, or whatever they may be called should be issued as training memoranda—much in the form of the "Army Training Manuals" issued during the war. Intelligence notes are apt to remain in the Intelligence Officer's office, and for many reasons do not receive the practical study which they deserve. Much has been done under the impetus of war to present the enemy realistically—but realism recedes with the war. If interest in peacetime training is not to go with it, some kind of a target must be provided. Practical study of enemy armies by means of tactical exercises without troops and demonstrations in peacetime should be perfectly feasible provided Intelligence and Training work very closely together.

None of this should be taken to mean that we are slavishly to copy the German or any other foreign system. Much of what suits them does not suit the British soldier, our military system, the climate of India, or the British taxpayer (though the latter's interests must not again be allowed to dominate all others). Such foreign armies as are ever likely to be a menace to us do not suffer from the same cramping limitations as the British Army has had to put up with in peacetime. Their ideas are therefore worth study. The use of parachute troops, of airborne maintenance, and of armor in mass were considered in England before the war but, so far as the writer knows, not seriously studied—still less practised—in spite of the many intelligence reports of their use on German and Russian maneuvers.

To sum up, there seems to be a need for continuous selective study of foreign army organization, equipment, and training. The object of this should be not solely to estimate, as an Intelligence problem, the degree of danger to the British Empire which such forces represent, but to assess and make use of the information so obtained for our own training needs. To do this properly, Intelligence and Training Staffs must work hand in hand. The former's views should be accepted as being those of trained soldiers, and the latter's foresight and imagination will be indispensable in making use of what can be obtained.

Aerial Action Against Convoys

Translated and digested at the Command and General Staff School from a Russian article by Lieutenant Colonel K. Muratkranov in *Krasnyi Flot* (Red Fleet) 13 April 1945.

AFTER the liberation of the city of Pechenga by the Red Army, the Germans started evacuating their troops, supplies, arms, and equipment from Kirkenes. Convoys began streaming across the Varanger Fiord. The enemy used not only transport ships and self-propelled barges but also small ships such as small patrol vessels, motor boats, etc. The situation forced them to keep

the convoys going day and night. The Air Force of the Northern Fleet was given the mission of disrupting this evacuation and of sinking the German ships.

This mission was carried out by the fleet's attack planes, bombers, torpedo bombers, and fighters. A considerable number of Stormoviks and fighters were shifted to advance airfields, and this doubled their radius of action.

Special planes continually informed the command post of the weather conditions in the Varanger Fiord and west of it, up to the Porsanger Fiord.

At the same time, our fliers watched carefully the enemy's communications. In addition to their systematic observation of the Varanger Fiord, they guided our assault groups toward the detected German ships. Even in bad weather, our torpedo planes, bombers, and Stormoviks accurately located their targets. Reconnaissance planes reported not only the location of convoys and their composition, but also their sailing order. This information enabled the staffs to select for each case the most advantageous method of action. A number of staff officers were stationed at the operational airfields. This facilitated the control of the operations.

Blows on convoys and naval bases were inflicted by day as well as by night. For night operations, the most experienced crews were detailed. In addition to bombing missions, they laid mines in the fiords and along the route of the convoys. In daytime, all types of aircraft participated in the action. Single planes, pairs, and group formations were employed. It was a case of "free hunting." Fighter-bombers and Stormoviks were used to attack nearby communications, while torpedo bombers covered the outlying routes.

The Germans strove in every way to reduce the losses from our aerial attacks. In daytime their ships were dispersed in various bays of the Varanger Fiord; at night they were reassembled in the Kirkenes port, where convoys were formed. Our reconnaissance, however, invariably spotted the ship assembly areas and guided our attack aircraft toward them.

The enemy constantly increased the number of escort ships. One transport was

often escorted by seven or eight ships, while eight to twelve fighters patrolled the air.

But even this was of little help to the Germans. On the basis of detailed reconnaissance reports, our staffs resorted to methods which called for the application of

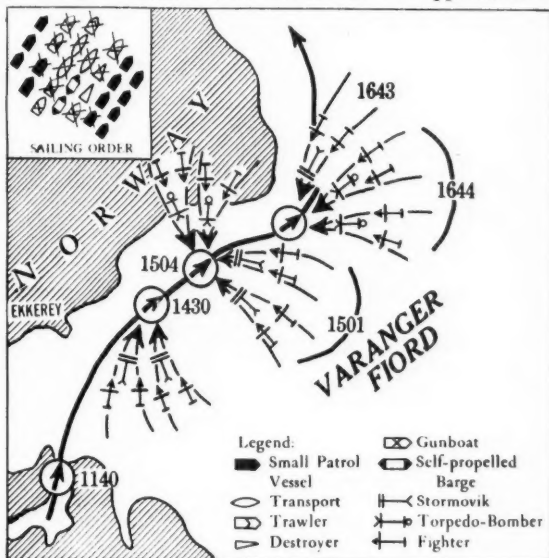


FIGURE 1.

superior force. Each torpedo and bomber attack was preceded by blows of the attack aircraft, while our fighters dispersed the enemy planes.

Here is how an enemy convoy was destroyed on 16 October 1944 (Figure 1).

Low clouds hung over the Varanger Fiord, and a thick mist covered the coast of Norway. Snow and wind coming from the north made the sea increasingly stormy. Our reconnaissance plane detected an enemy convoy in Bek Fiord. It was moving from Kirkenes to the north. Four Me 109's escorted the convoy.

Our reconnaissance planes were then ordered to keep the convoy in sight. Soon it was reported that five escort vessels had joined it. When it reached Ekkerey, the convoy was composed of three transports of 2,000, 3,000, and 6,000 tons, one trawler, two destroyers, six gun boats, two self-propelled barges, and

thirteen small patrol vessels. Six Me 109's were in the air. One four-motored plane, to combat submarines, was also reported. From the direction of the sea, the transports were protected by a triple ring of escort ships. Naturally, such an escort possessed a formidable fire power. In view of this, it

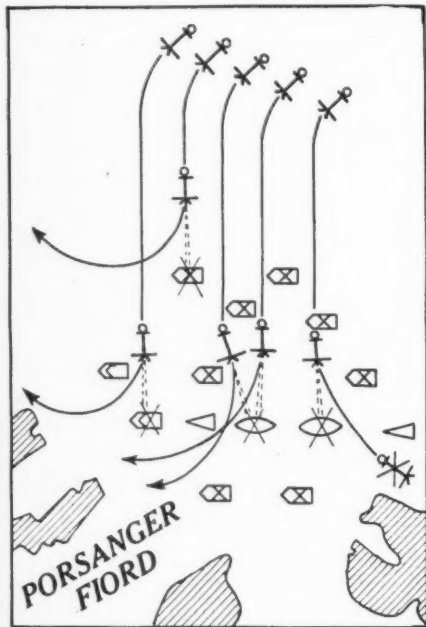


FIGURE 2.

was decided to neutralize first the fire of the escort vessels and then deal with the transport by consecutive torpedo-bomber attacks. At 1430 two groups of Il-2 planes [Stormoviks], escorted by fighters, dived at the convoy. The blow was a surprise to the enemy. One gunboat was sunk by a direct hit. Several bombs burst near one of the trawlers. The vessel caught fire. Flames also burst out from one of the transports. The convoy stopped. The convoy escorts changed their positions. Then the convoy moved slowly northward with fires still raging on both the transport and the trawler.

At this time two groups of Stormoviks

joined the fight. Despite strong antiaircraft fire, they attacked the escorts at 1501. As a result of direct hits, one destroyer, one gunboat, and one small escort vessel were sunk. Two Me 109 planes were downed by our fighters.

The forthcoming action of the main attack forces was thus considerably facilitated. Three minutes later two groups of torpedo bombers approached the convoy and attacked it from the direction of the coast. There were only a few escorts on this side, and all the antiaircraft weapons were still concentrated on our Stormoviks, which after the completion of their mission were now withdrawing to the southwest. The Germans did not expect our planes from the land side. No more than 800 or 900 meters separated the planes from the convoy. The enemy opened fire. The planes reached the target and released their torpedoes. The 3,000-ton transport, a gunboat, and a small vessel were hit. All three sank immediately.

A radio report from a reconnaissance plane notified the command that only nineteen ships out of twenty-seven were left in the convoy.

The enemy was now approaching Kibergnes. At 1643 the convoy was again attacked by a group of Stormoviks. One minute later another attack was launched by torpedo-bombers approaching from the sea. They were met with intense fire and were attacked by enemy planes which were in turn attacked by our escort fighters and diverted from their main objective. The battle grew increasingly violent. The torpedo-bombers sank two transports, one trawler, and two small escort vessels. Our fighters downed four enemy planes.

Twelve ships were thus sunk by our fliers. The importance of the operation lay primarily in the fact that the enemy convoy lost its most important ships: all three transports, one destroyer, and five gunboats.

Sometimes the Germans succeeded in passing the Varanger Fiord under the cover of darkness. In such cases our antiaircraft attacked the enemy in the sea. Once a convoy left Kirkenes at night and reached Tana

Fiord. In the morning, however, it was detected by one of our planes. Despite low clouds and a snow storm, the crew of the plane managed to determine the exact location and composition of the convoy. Two transports of 11,000 and 5,000 tons were escorted by two trawlers, two destroyers, eight gunboats, about eight fighters, and one BF-138 antisubmarine plane (Figure 2). The convoy was moving westward with the speed of nine to ten knots.

Five torpedo bombers took off to attack the convoy and found the enemy near Porsanger Fiord. Flying low over the water in a line formation, the torpedo bombers attacked. The ships laid down a barrage when our planes were two kilometers away. The planes answered with machine-gun fire. They broke through the barrage, reached the transports, and released their torpedoes. A reconnaissance plane watching the attack reported that both transportes, one trawler, and one gunboat were sunk.

The success of this operation was due to the element of surprise in our attack.

After the fall of the ports Kirkenes, Vadsö, and Vardö, the Germans tried hurriedly to withdraw their ships from the waters of northern Norway, but their attempt failed. Our fliers kept the fiords under

continuous observation. As soon as a convoy was formed, our aircraft, alerted by aerial reconnaissance, took off for the kill. Within a short time, our bombers and torpedo bombers had sunk up to thirty ships in this remote area.

During the period of the Pechenga campaign, all air and naval engagements were very violent. The Germans offered desperate resistance and spared no effort to defend their transports. Despite all this, the enemy was crushed by the victorious fliers of the Northern Fleet. During the offensive of our ground forces, which were attacking the enemy on land, our fliers sank 136 ships totaling 86,050 tons. Nineteen transports, four destroyers, nine gunboats, five self-propelled barges, and seven small escort vessels, a total of 73,950 tons of shipping, were damaged. Fifty-six enemy planes were downed in the aerial engagements.

This success was the result of the excellent training and skill of both the flying and staff personnel, the well-established co-operation between the tactical groups, and the incessant observation of the enemy's lines of communications and ports. Thorough reconnaissance allowed the timely detection of the convoys, the organization of pursuit, and repeated aerial attacks.

The Art of Generalship

An article by Lieutenant General H.G. Martin in *The Daily Telegraph and Morning Post* (London) 11 May 1945.

IN Brussels a few months ago I had the opportunity to hear once more Field Marshal Montgomery's views on the conduct of war. It was a talk of the greatest interest, which at the time could not be published.

When I saw Field Marshal Montgomery he was in the middle of the fighting for Holland and for the clearing of the Schelde in order to give the Allies the use of the great port of Antwerp. He spoke as the active conductor of operations then in progress. Now the fighting in Europe is over, but I have not attempted to adjust my notes to that present reality. I give them as I made them at the time, with the atmosphere of the war still

around them. Nor shall I try to reproduce the Field Marshal's words: it will be enough if I succeed in conveying something of his meaning.

The virtue of simplicity—that was the leit-motif of Montgomery's theme. In 1940, by no degree of generalship could the Allies have tilted the balance in their own favor. Now that they have mobilized adequate resources, however, their position is very different. Success today is a matter of observing certain simple, basic principles. Observe them, and you will win; neglect them, and you will miss success.

These basic principles of his, Montgomery

divides into two categories. In the first category he places the unchanging laws which are equally peremptory at all times; in the second, the variables, whose force will wax or wane according to the circumstances.

Of these unchanging laws he cites three examples. The first of these concerns operations. Before you can attack on land, you must win the battle of the air.

The reason is plain. In order to attack, you must concentrate and you must move; but neither of these things can you do unless you command the air. To defend, on the other hand, you disperse. Therefore, though you have lost command of the air, you may still defend.

Before Alamein was fought we had won command of the air—and we have kept it. Thus from El Alamein onwards—in North Africa, in Sicily, in Italy, and in western Europe—the Allies have been able to attack. Conversely, the Germans, though they can still defend, can no longer attack on any scale.

The second of these laws concerns administration: Before you can fight a successful campaign you must ensure adequate supply. This was the guiding principle alike of the Eighth Army and of the 21st Army Group throughout their respective Odysseys, from Egypt via Tunisia to central Italy, and from Normandy to Holland. Without the necessary tools you cannot get on with the job.

The third of the unchanging laws concerns man-mastership: If they are to use to effect the tools that you have given them, your men must be in good heart. So give to each an understanding of the way in which his little bit of the battle fits into the mosaic of the whole. Give to all the confidence of success. Treat all as partners in the great enterprise. Remember that the Army today is the nation. Thus you will create an appetite for victory.

So much for the three unchanging prerequisites to victory: command of the air, adequate supply, high morale. From these, Montgomery went on to discuss the art of generalship in its other aspects.

In modern war a commander whose battle has taken a wrong turning can reorientate

it only with the greatest difficulty. It follows that a commander of land forces must exercise a control much tighter than that of a general guidance by directive from a distance.

In battle, therefore, it is Montgomery's practice to locate his own advanced "tactical" headquarters right forward in the neighborhood of the tactical headquarters of his armies. Only thus can he intervene instantly if and when the situation demands his intervention.

In battle the corps is the tactical unit. Its composition is not fixed—it is merely a holding company, to which you allot divisions, either armored or infantry, at will. No two divisions are alike; some excel in one type of operation, others in another. If you know your job as a commander, you will ensure that the divisions in each of your corps are the right divisions for the operation in hand; it is all a matter of thinking ahead and of timely adjustment.

There are no armored corps as such; any corps may be given a greater or lesser proportion of armored divisions according to the circumstances. Thus every corps commander must be capable of handling both infantry and armor. That is, one step lower down and at one time or another, he should have commanded both types of division, infantry and armored.

As I listened I recalled that years ago I had watched the germination of many of these ideas. Montgomery has always been an original thinker. Already, in distant, prewar days, when he was still a colonel, he had begun to impress his views on the Army.

Indeed, his was the original conception of the "forward body" in the advance to battle, a conception which soon became widely accepted throughout the Army. The forward body was to be much more than a stereotyped advanced guard; it was to consist of a variable combination of the more mobile and hard-hitting elements of the formation to which it belonged, grouped under the orders of the formation commander himself, and its role was to precede the formation into battle in order to initiate the battle in accordance with the commander's will.

The points to note in this doctrine from

the past are these: first, that Montgomery held, as he holds today, that if the battle is to develop aright the commander must be well up from the outset, in such close and continuous touch with his forward troops that he can rule the fight; and second, that the forward body—and today this forward body is represented by the forward corps of Montgomery's 21st Army Group—was, and still is, the variable product of careful selection and much prior searching of heart.

To return, then, to the present. Command, Montgomery insists, must be personal; orders must be verbal.

Thus it is his practice to meet his army commanders before an operation and to give them verbal orders—orders which may cover a period as long, perhaps, as a week. He allows no staff officers to attend these meetings—neither his own nor his army commanders'.

After such a meeting, his army commanders go off to meet their corps commanders and to issue verbal orders in their turn, and so the process continues down the chain of command.

Frequently Montgomery will issue a written directive in confirmation of his verbal orders. Contrary to normal practice, however, this directive he both writes and signs himself. He maintains with obvious force that if he were to leave the job to a staff officer he could not be sure that the directive would exactly reproduce his verbal orders either in form or spirit.

Also he insists that, in all these particulars, his subordinate commanders shall follow his example. By this insistence on self-reliance, clear thinking, and clear speech he ensures that there shall be no weak links in the chain of command.

Ideally, every commander from the commander in chief downwards should have held command at every lower level. Miss out a step and there is a gap in your knowledge. If there are gaps, your subordinates will find them—and may bluff you. Particularly important is it that a commander should have personal experience of command in the two grades immediately below his own, since it is

with these two grades that he will be most intimately concerned.

To a commander, obsession with detail is damnation. The higher the grade of the commander the more essential is it that he should keep himself clear of it. If once he allows himself to become immersed in detail he will be swept away downstream—to perdition. He must remain free to concentrate on the simple, vital fundamentals of war—to safeguard the pillars, in fact, which support the whole edifice.

This attitude of detachment, however, becomes impossible for a commander whose staff is organized in accordance with accepted British principles.

Under our organization the Chief of the General Staff at Army Group Headquarters, and the corresponding general staff officers at the headquarters of lower formations, can issue orders only to their own branch of the staff—that is, to the general staff branch, which deals with operations and intelligence; the work of the other, administrative, branches they are empowered merely to "co-ordinate"—blessed word which may mean so little.

Under this arrangement the heads of all the branches have equal and direct access to the commander, who cannot fail to find himself engulfed in detail in consequence.

This is all wrong. The Chief General Staff Officer on every headquarters should be—as in fact, under Field Marshal Montgomery, he is—a genuine chief of the staff in all its aspects; that is, he alone should have direct access to his commander, whose orders for all branches of the staff alike he should receive and issue. The orders are the commander's; the sole responsibility for implementing the orders should be the Chief of Staff's.

The two are poles apart. It is the duty of the Chief of Staff to master the endless intricacies of detail. It is his duty—by his own infinite self-sacrifice, toil, and sweat—to preserve his commander's clarity of judgment for the exercise of the broad and simple functions of command.

Thus we open and close on the same note—that of simplicity.

Sanitary and Epidemiological Activities in Offensive Operations

Translated and digested at the Command and General Staff School from a Russian article by Brigadier General T. E. Boldyrev, Medical Corps, in *Voenno-Meditsinskii Zhurnal* (Journal of Military Medicine) June 1944.

THE gravity of the sanitary and epidemiological conditions prevailing in areas temporarily occupied by the Germans and now liberated by the Red Army is well known. Only occasional hospitals and dispensaries which have miraculously escaped destruction may be found in populated places; all other medical, sanitary, and epidemiological establishments have been completely obliterated. As a result, various infectious diseases are widespread and large epidemic outbreaks are continually cropping up throughout the liberated territory.

Typhus, the inevitable companion of poverty and starvation, has been spreading without hindrance, and up to sixty percent of the population in a number of regions have already had it. Typhoid fever is also encountered very frequently, particularly in White Russia and in the Baltic area, while dysentery has become an infection that has not spared a single populated place. Because of the absence of prophylactic measures, smallpox, a disease long forgotten in Soviet Russia, has appeared again in the occupied territory. Lousiness has become a widespread phenomenon.

The gravity of the situation in the areas where operations are now conducted is obvious from the mere fact that eighty-five percent of the typhus cases among our front troops has been the result of contact with the population of the liberated areas.

The primary task of the Medical Service of the Red Army, therefore, and particularly of its Antiepidemic Service, has been the prevention of the appearance and spread of infectious diseases among the advancing troops.

The following measures are considered as essential:

1. *Continuous sanitary and epidemiological reconnaissance.*—The primary purpose of sanitary and epidemiological reconnaissance

is the study of the sanitary situation in areas about to be occupied by the advancing troops. Information on these areas should be acquired by various methods, including special medical reconnaissance operating in the enemy's rear. When the location of large epidemic centers lying ahead of the advancing troops is known, the Medical Service warns the approaching units of the threatening danger, takes the necessary prophylactic measures, and concentrates antiepidemic supplies and equipment in the proper direction. Reconnaissance of the enemy rear areas is primarily the duty of the higher echelons of the Medical Service, but should also be organized, whenever possible, by the command of troop units. The reconnaissance parties move with or follow the advancing troops. Their mission is to locate the centers of infection in the liberated areas, to prevent their contact with the troops, and to liquidate them if possible, or at least isolate them as soon as they are discovered. Reconnaissance in this case is echeloned: the first echelon is reconnaissance by advance units and divisional reconnaissance; the second echelon, by army; and the third echelon, by army group. Each subsequent echelon should maintain contact with the preceding one; check, amplify, and complete its data; and take all necessary and increasingly more effective antiepidemic measures.

There are several reasons for this echelonnement. First of all, the epidemic situation in the liberated areas undergoes abrupt changes caused by considerable migration of the population. Second, the various echelons of the Medical Service can complete only certain definite sanitary and epidemiological tasks, and therefore each subsequent echelon completes the work started by the preceding one. Thus, work begun by the first echelon may be supplemented and sometimes even completed by the second.

Quite often, the completion of all sanitary work in an epidemic center may require the participation of the third reconnaissance echelon.

For example, the first reconnaissance echelon may be charged only with the location of the centers of infection and their isolation from the military personnel, the posting of affected communities or houses, and the selection of water sources for the troops. The second echelon may be charged additionally with the liquidation of centers of infection if the tempo of advance of the troops allows it. It should be noted, however, that the reconnaissance units of the second echelon should not lag behind their troops, for the task of liquidating centers of epidemics should not interfere with their advance if the situation calls for it. In these cases, this task will be completed by the Antiepidemic Service of army group.

The tempo of advance of the troops always determines the scope of the sanitary and epidemiological reconnaissance, as well as the scope of the antiepidemic measures to be taken.

Epidemics among the troops should be controlled by the lowest echelons of the Medical Service. Special agencies and experts in antiepidemic work may be used if necessary. Early diagnosis and early initial isolation of all the diagnosed and doubtful cases, combined with thorough disinfection of the center of infection, is very important in this work.

In a very rapid advance, the activity of the sanitary and epidemiological reconnaissance may be limited to the most important areas and main directions and routes of advance. Some of the epidemic centers, therefore, may remain undetected by both the first and second reconnaissance echelons. This increases the responsibility of third echelon reconnaissance (army group). It should be borne in mind that leaving undetected or uncontrolled epidemic centers in our rear areas is extremely dangerous.

Finally, we should note that it is the duty of the sanitary and epidemiological recon-

naissance to select sites and quarters for billeting army and army group services and medical installations. Unfortunately, there have been many cases where reserve and other units and organizations, and even hospitals, were located in the very centers of epidemic diseases. This has happened whenever preliminary sanitary and epidemiological reconnaissance failed to do its job.

When a populated place is used for quartering troops for a long period of time, those in charge of sanitary and medical installations must immediately establish constant and thorough sanitary-epidemiological observation of the surrounding areas within the radius of from five to ten kilometers.

2. *Isolation of epidemic centers.*—This is to be achieved by drastic measures if necessary. All suspicious places should be immediately placed in quarantine, and all units, headquarters, or military personnel should be kept out. Special armed patrols are posted to prevent the inhabitants and military personnel from leaving and entering the populated place. Persons violating this order should be severely punished.

The entire population should be placed under observation. This is to be done by both military and civilian sanitary personnel. Daily inspections should be the rule, and all lice-infested individuals should be immediately deloused. This must be made compulsory if necessary. All personal effects and household furnishings should also be repeatedly deloused. All sick cases detected during daily surveys must be immediately isolated. Case should be taken not to skip a single individual.

3. *Personal hygiene and prophylaxis of lousiness.*—This calls for frequent, possibly daily, inspections of military personnel with immediate delousing, when necessary, of their clothing and equipment. The inspections should be made by the unit commanders under supervision of the Sanitary Service. Responsibility for lousiness lies primarily with units commanders.

Each battalion (in defense) should have a mobile bathing unit with a capacity of ten to fifteen men, and a delousing unit

with a capacity of five or six sets of clothing at a time.

It is imperative that combat units be regularly supplied with clean underwear. When the troops are about to move forward, each man should be issued two pairs of clean underwear. Specially equipped laundry units are attached to divisions. They are supplied with soap, hand laundering devices, and a small underwear exchange stock. Experience shows that even under conditions of long offensive battles, the laundry units accomplish their task in a satisfactory manner. Transportation for laundry units is provided by the Division Quartermaster.

The troops should not be quartered in houses together with the civilian population. The quarters intended for billeting troops should be thoroughly disinfected.

Armies and army groups must always have at their disposal a number of sanitary crews for the rapid processing of small and large units joining the reserve following a period of combat at the front.

4. *Thorough sanitary control and processing of replacements joining the line troops and coming from various rear echelons.*—This work should begin at the army-group sanitation control posts and be repeated until the reinforcements have reached the front-line units.

Arriving replacements should be immediately subjected to a thorough sanitary processing with subsequent verification of its quality, and only then placed in separate quarters.

During a fourteen-day quarantine, these men should not be allowed to mix with other military personnel.

The replacement echelons on their way to the front must be composed of healthy

and clean individuals and have a sanitary pass without which no echelon is allowed to proceed forward.

5. *Well organized antiepidemic activity on the routes of evacuation of the wounded and sick.*—The wounded, whose numbers naturally increase during periods of active combat operations, call for special care with respect to their antiepidemic security. Responsible medical personnel is assigned to carry out this work in all the hospitals. This personnel, as it frequently happens, have no sufficient experience in practical epidemiology and need help and instruction on the part of expert epidemiologists. This help should be provided for. Expert epidemiologists must systematically check the work of the regular medical personnel.

Sanitary segregation of the wounded is the primary task during all the stages of the evacuation. Its purpose is to separate quickly the sick from the wounded and to prevent the spread of infection through contact. Its second purpose is the proper sanitary processing of the sick and wounded.

The wounded treated in the field hospitals should be inspected systematically, daily if possible, and, if pediculosis is detected, the wounded man as well as his underwear and bedding, including blankets and mattress, should be immediately deloused.

Each hospital should have special wards for doubtful infectious cases. The wounded with infectious diseases are placed in separate wards and submitted to thorough medical observation for the entire incubation period of the suspected disease.

These five prophylactic measures are absolutely necessary for successful prevention of epidemic diseases, particularly typhus.

Science in Submarine Warfare

Translated, digested, and compiled at the Command and General Staff School from German articles by Lieutenant Herbert and Lieutenant Böltz in *Signal* (Berlin) No. 1, 1945.

THE most dangerous property of the submarine is its invisibility. At the time of the first World War it was the constant endeavor

of the enemy to pierce this veil concealing the invisible torpedo boat.

At the London Naval Conference of 1935,

England agreed to the construction of a limited number of submarines, as the English Admiralty believed itself to be in possession of a positive listening device, the hydrophone, which would eliminate forever the danger of enemy submarines.

Up to the beginning of the present conflict, the hydrophone was the standard listening device. The particular construction of this underwater sound detector makes it possible to hear perfectly the sounds proceeding from a moving, submerged submarine and to determine the direction from which they come. But at least two vessels are required for the operation of this instrument. During the attack on the submarine by means of depth bombs, the attacking ship switches off its listening device to prevent its being put out of order by the explosions of the depth bombs. In the meanwhile, the second vessel, located some distance away, continues to follow the movements of the submarine. The attacking boat runs several times over the supposed position of the submarine, dropping depth charges set to explode at varying depths. The submarines defend themselves against these attacks by very simple means. They either descend to the bottom or slip away from the area. In the latter case, the motors turn over very slowly, all auxiliary motors are turned off, and not a man moves on the boat. In this manner, the sounds that do come from the submarine are drowned out by those proceeding from the enemy's own vessels and that of the water flowing past their listening devices. The submarines then follow the movements of their adversaries by means of their own listening devices, change their course, and escape.

The demand made of science was to develop a device able to detect with certainty a silently-moving submarine and one which at the same time would not have to depend on the cooperation of another boat. In the development of this new device, the English scientists followed the echo principle. In this case, a sound is emitted and, when its echo returns, it is possible—since the velocity of sound is known—to determine the depth of a body of water by the interval that elapses between

the time of the sound and its echo. It was a relatively simple matter as long as one confined his attention to the bottom of the sea, but it gave rise to many complications when the effort was made to use the principle in hunting for submarines, since these present but a small surface from which the sound can be reflected. Long experimentation revealed the fact that supersonic waves were best adapted to this use.

High-frequency generators transmit supersonic waves through the water, and by means of an amplifier their echo can be perceived at



FIGURE 1.

WARNING APPARATUS ON A GERMAN SUBMARINE. THIS DEVICE REVEALS THE PRESENCE OF AN ENEMY EVEN AT GREAT DISTANCES.

moderate distances. With the help of such an underwater locating device, the pursuit boat is able to determine accurately the distance to a submerged submarine and the direction in which it is moving without the help of an auxiliary boat. These devices possess the defect, however, of detecting the presence under the surface of the water of any object capable of sending back an echo. There is no way of knowing whether one has located a submarine, a whale, a school of herring, or a submerged wreck. Nevertheless, under good conditions, the English still stood a chance of detecting an approaching submarine before it was close enough to attack.

Again the German submarine changed tactics. The big convoys were attacked from the surface at night. The pack of submarines attacked the convoy from all sides almost

simultaneously. The enemy could change his course all he wished, yet continued to run into the boats of the attacking pack. To detect the submarines in time, it became necessary to increase the range of vision around the convoy by at least one day's traveling distance. The enemy was obliged to employ airplanes against the submarine. Gradually, the Atlantic was covered by a network of patrol planes. But the submarine could still take advantage of the darkness, the period when the airplane was blind.



FIGURE 2.

PILOT'S SEAT AND CONTROL STICK OF A LIGHT, MOTORLESS HELICOPTER ON THE DECK OF A SUBMARINE.

The enemy then invented a new piece of equipment. Instead of employing the usual sound or supersonic waves, ultra-short radio waves and invisible light waves were put to work. With the help of directional antennae (e.g., parabolic mirrors), the radiated energy is transmitted in the desired direction. When these electro-magnetic beams encounter an object above the surface of the water, they throw back an electrical echo which is amplified many times in the apparatus carried by the plane or destroyer and rendered either audible or visible. The exploring beams possess about the range of human vision over

water on a clear day. In other words, they extend as far as the horizon. They are independent of bad weather, fog, mist, or darkness. Since the speed of the beam is equal to that of light, the locator in the cockpit of the plane, by means of the simple turning of his directional antenna through an angle of 360° , obtains an accurate view of everything within the electrical field of view.

Soon after the first reports by German submarine commanders of the existence of this new piece of equipment, German scientists gave the submarine an effective counter-remedy. Each boat was now provided with a device which enabled it to detect the radiated electrical energy sent out by the patrol planes and effect a timely escape under the surface of the water (Figure 1).

Then the planes were equipped with searchlights in order to be able to make an optical search, even at night, of the area under patrol. And again the submarines reacted. The boats met the planes that were following the indications of their instruments with a hail of antiaircraft shells from their newly acquired armament. Many a four-motored plane came to its end in the broad Atlantic. The enemy then changed over to a method which made use of the airplane-destroyer team. Regardless of the visibility, it became

very difficult for the submarines to effect a surprise attack on a convoy. It therefore became necessary to equip submarines with appropriate countermeans to enable them also to see and hear better, to conceal themselves more successfully, and to deceive the enemy.

One of the most significant counter-measures that German science has produced in some time is the Diesel air-mast. It permits submarines to operate with their Diesel motors even when submerged. This device extends to the same height above the surface of the water as the periscope tubes. There is in the mast an intake valve through which the

necessary fresh air is drawn for the Diesel motors; also an exhaust valve through which the burned gases escape. With the help of this new piece of equipment, submarines are able to travel indefinitely, submerged to the point where the periscopes are just above the surface of the water, without being forced to make use of their electric motors. In addition to this, there is no need for rising to the surface for the purpose of charging the batteries. In emergencies, the boats can dive instantly, for the switch-over from Diesel to electric operation is automatic.

Another countermeasure was the introduction of the submarine eye in the form of a tiny motorless helicopter, which is carried by the submarine on long runs. The parts of this device are stowed in a round, water-tight compartment just beneath the surface of the upper deck. Its take-off area is behind the turret (Figure 2). The craft consists of a light seat, control stick, and driving mechanism joined together by a light metal framework. Attached by a cable, the helicopter is lifted by the speed of the submarine to a maximum height of 300 meters. At this point, the observer has a view which extends many miles farther than that to be had from the deck of the submarine (Figure 3) [see Editor's Note at end of article].

Furthermore, it became necessary, on the basis of the experiences of German submarine commanders, to devise new means for deceiving the enemy. Both the airplane and the destroyer had to be deceived. This was often accomplished by the simplest of means. Just as the hermit crab, for instance, conceals himself in the shell of another denizen of the sea, the necessities of war gave rise to the creation of a protective "animal" for the submarine, the "water donkey" (*Wasseresel*).

A submarine operating in the vicinity of a coast particularly infested by patrol planes and destroyers uses this device till a more favorable position for attack can be reached. By means of a steel cable some 2,000 meters in length, the submarine tows a float behind it. On this float, just beneath the surface of the water, a faithful replica of a submarine bridge is mounted. Between the submarine

and the "water donkey" extends an electric cable. If the commander discovers a destroyer or an airplane that might be dangerous to him, he sets the compressed-air-operated noise machine in the "donkey" in operation. If the plane attempts to attack the supposed submarine, air is released from the compressed-air tank of the float and oil from the



FIGURE 3.
THE SUBMARINE'S "EYE." HELICOPTER RISING FROM
THE DECK OF A SUBMARINE.

oil tank. As a result of this, there occurs an upward rush of air and an oil patch appears on the surface of the sea. The enemy pilot now drops his depth charges on the target, and from the interior of the "water donkey" issue fragments of pneumatic rafts that have been stowed there, articles of clothing, tin cans, etc. Simultaneously with this, the submarine commander floods the "donkey" and it dives out of sight—that is, the supposed boat sinks. The plane now drops its entire bomb load into the vortex produced by the sinking "donkey" and possibly calls on destroyers to assist in finishing the work of destruction. The submarine looses the steel cable and

complacently continues its search for enemy shipping.

EDITORS NOTE.—The following account of the "submarine's eye" appeared in *The Aeroplane* (Great Britain) for 23 February 1945:

"The Cody man-lifting kite for artillery observation interested the British War Office long before flying had become general, but it was superseded during the last World War of 1914-1918 by the 'kite' balloon, which was not really a kite in any sense of the word, for a kite is essentially heavier than air.

"Now the old idea has been revived by the German Navy for observation from submarines, and it has been copied by the Japanese. The appliance used is of special interest, as it is a gyroplane, and this is the first time in history that the gyro system has been adapted to a kite for the practical purpose of man-lifting.

"The little gyro, with its observer, is sent up on a light-alloy cable from the deck of a surfaced submarine traveling into the wind. The appliance has variable-pitch blades for the rotor, like an autogiro, and appears to be easily controlled by the observer. It is not used in the North Atlantic, where steady winds and appropriate sea conditions are all too rare, but in other seas it may be quite useful.

"For instance, when the observer, who is always in telephonic communication with the submarine, signals an Allied convoy and gives its position, he is hauled down and the U-boat proceeds to attack the convoy. If, on the contrary, he signals "Enemy aircraft approaching," they just cut him adrift and crash-dive. The observer has his little dinghy and parachute, so he just stays put in the middle of the Pacific or any other ocean, hopping for the best."

Britain's Bombers

Digested at the Command and General Staff School from an article in *Canadian Aviation* May 1945.

COLOGNE, commented a war correspondent who entered the city with the first Allied units, was taken by Bomber Command many months ago.

This arresting phrase crystallizes the magnitude of the effort which the Royal Air Force has directed to the extinction of the Ruhr. No less than 450 square miles of that vital region, with its coal and iron and heavy industries, now contain not a single town of any industrial importance and not a single major factory of any value.

Beyond the Ruhr, Bomber Command has played the greater part in the destruction of many other centers of German industry and transportation. About seventy-four percent of Hamburg, or 6,200 acres, is in ruins; the Germans estimate that it will take five years to clear the rubble alone. One-fifth of the fully built-up area of Berlin is totally destroyed.

Truly, the Germans, who sowed the wind, reaped the whirlwind. Their heaviest raid

on London, in May 1941, saw 450 tons of bombs dropped on the English capital in some ten hours. Comment is needless.

When the war began, the standard British heavy bomber carried up to 4,500 pounds of bombs—a little more than the present-day Mosquito carried on its nightly run to Berlin. It could not then carry the 4,000-pound bomb, which, indeed, was not yet perfected by the British scientists who have led the world in this fearsome branch of war engineering.

As the big four-engined bombers began to flow from the production lines, so in step advanced the development of the big bomb. First 2,000-pounders became commonplace. Then came the 4,000-pound missile; next, the 8,000-pound; third, the 12,000-pound "earthquake"; and now the 10-tonner.

The new bomb is based on the 12,000-pound bomb, which, incidentally, sank the German super-battleship *Tirpitz*. While it was being evolved, experiments were made

with scale models. Tests were conducted in the wind tunnel, and 4,000-pound models were dropped from different heights. Powers of penetration were calculated from the results of firing special models from a gun at a velocity estimated to be the striking velocity of the bomb when dropped from a given height.

Finally, a full-sized 10-tonner, filled with inert material, was dropped from operational height on to open ground at a secret experimental station. It penetrated so far that eighteen men working twelve hours a day took nine days—1,728 man-hours—to dig down and unearth it.

Today's standard British heavy bombers carry up to ten tons of bombload.

The success of Bomber Command has its roots deep in the past. Great Britain, where the tendency to develop military aviation as a separate arm apart from the Army and the Navy found expression as long ago as 1918 with the formation of the Royal Air Force, was the first country to recognize that successful bombing demanded the big bomber able to carry big bombs. The first British twin-engined "heavy" bomber was in design and production in 1915. Fleets of these airplanes did valuable work, and initiated strategic bombing with the Independent Air Force in the later phases of the war. When the Armistice was signed in November 1918, their successors—four-engined biplanes weighing fully laden nearly fifteen tons and designed to carry 1,000 pounds of bombs to Berlin—were waiting for the order to attack the German capital.

Because the fundamental need was to carry the biggest possible destructive load, Royal Air Force heavy bombers were designed primarily for night operation. Defensive armament, especially in these days of power-operated gun turrets, shell-firing cannon, and heavy ammunition, drastically curtails the permissible bombload. Twenty, even ten years ago night operation also implied slower permissible speeds, because interception by enemy fighters and gunfire is hampered by darkness. The slower aircraft could again carry more load than faster

contemporary aircraft employing the same available engine power.

Nowadays, British designers and engineers have overcome the problem of combining high speed—the bomber's best ally—and big capacity for load. It is significant that our leading high-speed "light" bomber, the Mosquito, with a crew of two, actually carries about the same bombload as a Flying Fortress, with its crew of ten men, and carries it approximately one hundred miles per hour faster.

Step by step with the perfection of the British heavy bomber—defined as an aircraft able to carry at least five tons of bombs, and big bombs at that—British scientists in other fields, and notably in radio, have invented and developed new and remarkable instruments which have made bombing by night at least as accurate as by day. British bombers carry with them the amazing "magic eye" which pierces cloud and darkness to give the bombardier a clear view of the target, and the lesser chances of fighter interception by night mean that, generally speaking, the night bomber gets a steadier run up to the target than the day bomber.

Critics who are clearly ignorant of the technique of night bombing sometimes talk as though the Royal Air Force, afraid to bomb by day, contented itself with the indiscriminate hurling overboard of batches of bombs from the safe obscurity of night, without any real idea where they were going. The record of the Royal Air Force answers any slur on its courage and morale, and the rest of the statement, as every informed person will know, is nonsense. Let one example of British night-bombing accuracy speak; some 35,000 tons of bombs, by far the greatest part of them dropped by British bombers at night, have fallen on Cologne. Although the city is estimated to be more than sixty percent destroyed, with more than 2,000 acres literally laid flat, the cathedral, which is in close proximity to important military targets that are now rubble, is virtually intact.

The technique of the Pathfinder and of the Master Bomber have, indeed, produced

in association with British inventiveness a destructive weapon of the highest order of accuracy. A major contribution is that of the men who produced the new wonder flares which turn black night over the target into day.

And Bomber Command is also proficient in the science of the low-level high-precision attack when the target warrants—illustrated in such famous raids as the blow at Gestapo headquarters in Oslo and Aarhus, when individual buildings and even rooms were pinpointed and destroyed, leaving virtually unharmed buildings not only adjacent but actually contiguous.

The Air Staff visualized the four-engined bomber of 60,000 to 70,000 pounds all-up weight as long ago as 1936. They sought, in addition to the capacity to carry big loads of big bombs, the operational economy of the big airplane. On many missions the big bomber may be operated with a crew no more numerous than is normally sent out with a smaller bomber, yet the big airplane may carry more than four times the bomb-load for a given range. Traffic density at air bases where the bomber squadrons take off and land is lessened, and the task of airfield control is greatly simplified.

Before the first four-engined bombers

rolled from the production lines the biggest bomber in service anywhere in the world was about 30,000-pound all-up weight. The Germans, obsessed with the view that the airplane was rightly considered only as an adjunct of the army, neglected the heavy bomber and, even when the Royal Air Force was greatly outnumbered and our anti-aircraft batteries were few, were quite unable to unleash a really decisive blow on London and the main English industrial towns. Further, the German bombers lacked the ingenious power-driven gun turrets evolved by British engineers, which enables Allied bombers to encounter fighter aircraft on reasonable terms. So the Luftwaffe failed utterly in its effort to bomb Britain out of the war.

Man for man of aircrew, British heavy bombers pack by far the heaviest punch in the air war. They carry the biggest bombs. Guided by amazing instruments, assembled over the target with the help of the Pathfinders and controlled when there by the Master Bomber, these giants wrecked vengeance twenty-fold for the destruction caused by the Luftwaffe in Great Britain and many other peace-loving nations. They did indeed "occupy" a great part of the doomed German empire.

The Yugoslavian Army

Excerpts from an interview with Marshal I. Broz-Tito, translated at the Command and General Staff School from a Russian article in *Krasnaya Zvezda* (Red Star) 15 April 1945.

OUR army was born and hardened in furious and unequal battles with an enemy armed to the teeth. We started as guerrillas, organized in small groups of ten to fifteen men armed with rifles. The ranks of the partisans grew, but there were not enough weapons. Early in 1941 we organized in Serbia the production of rifles and ammunition and armed tens of thousands of men.

After our withdrawal from Serbia, we were forced into a large-scale battle on an eighty-kilometer front. While directing this battle, I noticed that our partisan units, despite

their supreme courage, had some serious weaknesses. Each unit fought its own way and lacked proper leadership. I saw the necessity of creating regular units with appointed commanders. This soon resulted in the organization of the First Proletarian Brigade. We called it "Proletarian" because it was composed chiefly of workers. Two days after it was formed, it was attacked and had its baptism of fire. The brigade gained a crushing victory over the attacking Italian units and captured considerable booty. In the subsequent battles this brigade accomplished mira-

cles. Its difficult march into Bosnia and Montenegro was also crowned with success. Some time later we formed five more fairly well-armed brigades. Thus, parallel to the widely extending partisan movement grew also our regular units.

Discipline in the People's Army of Liberation was based on the consciousness of its members. Great attention was paid, despite the difficult situation, to their political and moral education. From the very first days of the fighting we cultivated comradeship toward the women who joined us by the thousands. We were ruthless with those who attempted to plunder the population. For picking an apple in a farmer's garden we inflicted severe punishment. Pillage was punishable by death.

All this raised our prestige in the eyes of the population, which considered us not only as fearless but also as honest patriots who had dedicated their lives to the liberation of the enslaved country.

For three years we waged a warfare of movement, applying the tactics of rapid thrusts, sudden raids, and quick attacks on the most vulnerable points. This was our guiding principle and it saved our armed forces from annihilation by an enemy armed with powerful modern weapons.

Then the situation changed. We had to engage in modern warfare along a definite front line. This signified a new stage in the development of our armed forces, and the transition period was difficult. Our men were used to mobile warfare, to action in the mountains. When we reached the plains, we fought with less confidence. The Germans tried to take advantage of this weakness, but our men quickly became adapted to the new conditions and now, largely due to the utilization of the experience of the Red Army, we learned how to beat the Germans on the plains.

The achievements of our artillery should be mentioned. Our man became familiar with the war matériel received from the Soviet plants and used it quite successfully. The successes of our First Army, fully equipped with Soviet weapons, should be particularly stressed.

When most of the Yugoslavian territory

had been liberated, thousands upon thousands of men streamed into our ranks. We began building a real modern army and establishing an iron military discipline.

One of our most serious problems was the creation of our officer cadre. After the rout of the old Yugoslavian army, most of its officers joined the enemies of the people. Our officers were trained in combat. They come from the people. In the course of the war they showed examples of outstanding gallantry and combat initiative. They know how to fight, yet they have had but little instruction. As the formation of regular brigades progressed, this problem became increasingly acute. In 1942 we established schools for officers. These courses were attended by all our officers and, despite the brief period of instruction, they enriched considerably the military knowledge of our commanders. Recently we created the Academy of the Yugoslavian Army. Two thousand students are attending it now.

In order to consolidate the victory won at the cost of so much blood, to make our country invulnerable, and to establish a lasting peace, we need a strong army. And we will create such an army. This is dictated by the great extent of both our land and sea borders. In old Yugoslavia four and a half billion dinars out of the total national budget of twelve billion dinars went to military appropriations, yet the army had neither tanks nor planes. As a result of this, Yugoslavia was smashed by the Germans within ten days. Our nation will not have another catastrophe. Our purpose is to equip our army with modern war matériel. Infantry and especially mountain troops are of utmost importance in our situation. Our Montenegrin and Bosnian mountain units inflicted defeats on the best German Jaeger troops. We must arm our mountain units with the most modern weapons. Great attention should also be paid to the artillery. We have already our own aircraft and shall develop it in every way. The Yugoslavian army will also have tank troops.

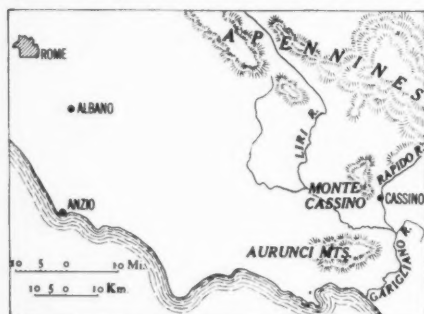
The army has great prestige in new Yugoslavia. Our nation knows that the country has been saved by the People's Army of Liberation and will spare no effort to make this army strong and effective.

The Winter Campaign of 1943-44 in Italy

Digested at the Command and General Staff School from an article in *The Army Quarterly* (Great Britain) April 1945.

THE story of the winter campaign in Italy has been overshadowed by the more spectacular successes which followed the launching of the summer offensive. Some details of this campaign may be revealed, in which the Allied armies, although fighting on battlefields of the enemy's choosing, in terrain ideally suited to defense, succeeded, nevertheless, in denting the German line and securing the bridgeheads needed for the summer victory.

One of the strongest defensive positions in Europe guarded the overland route to Rome up the valley of the river Liri (see sketch),



where General Clark's Fifth Army was poised at the beginning of January 1944. The seven-miles-wide opening into the Liri valley was flanked to the south by the roadless Aurunci mountains covering the whole region between the Liri and the west coast, and to the north by the main massif of the Apennines, where the few roads, rising high above the snow-line, were impassable to an army in winter.

The battlefields, over which the winter campaign was fought from 17 January to the end of March, were of two sorts: flat, waterlogged river valleys, always closely overlooked by the enemy-held high ground; and bare rocky mountains where each craggy height had to be scaled and stormed, and failure meant exposure in the open to all weapons of which the enemy disposed.

A seaborne landing south of Rome, and a frontal thrust into the Liri valley, combined

with turning movements on either side of the valley, were the elements of General Clark's plan for breaking the German line. Its success depended on the value the Germans set on Rome. Their ability to hold the main front against our assault was beyond dispute; equally so was the fact that they could not compete with a simultaneous landing in their rear by four divisions without rapid and powerful reinforcement.

On 17 January, when General McCreery's 10th British Corps attacked across the lower reaches of the Garigliano to begin a turning movement against the German right flank, it faced problems typical of the winter campaign. The ground was waterlogged and boasted little cover. The muddy banks of the river and the primitive tracks which led up to it allowed the minimum number of sites for building raft ferries for the heavy equipment that must follow the assaulting infantry. These and the only possible site for a heavy road bridge were well known to the enemy, were protected by mines and covered by his guns and mortars.

By careful planning and concealment of their preparations, 10th Corps overcame many of these difficulties, and in a night attack achieved complete surprise. By dawn on 18 January, seven battalions had crossed the Garigliano and secured a footing on the enemy hills. The enemy, not slow to realize the threat to his flank, rushed three divisions south to meet it; and on 21 January, 10th Corps, strongly outnumbered, faced a determined counterattack on its entire bridgehead. In two days of heavy fighting, however, it drove the enemy back, and then advanced again to capture fresh positions and a firm base for the summer offensive.

The 10th Corps attack had drawn almost the whole of the enemy reserves to the coastal sector, and the situation was promising. The next blows fell swiftly. The 2d (U.S.) Corps began the frontal assault across the river Rapido into the Liri valley on 20 January, and a few hours later the French Expeditionary

Corps moved forward through the mountains north of Cassino to threaten the enemy's other flank. Then, at dawn on 22 January, 6th Corps, comprising British and American troops under an American commander, landed at Anzio.

At this point the great strength of the winter line defenses, and the advantage which the enemy enjoyed of interior lines of communication, began to make themselves felt. The enemy sent his last immediate reserves to stem the French advance and fought stubbornly and successfully for the line of the Rapido. Here, although the 36th U.S. Division crossed the river, they could make little progress in the maze of obstacles and fortifications that confronted them on the west bank. In addition, the river itself was so heavily covered by fire that it proved impossible to pass supplies and guns across to the assaulting regiments, and, on 24 January, after two determined attempts had been made, the 36th U.S. Division had to withdraw to its old positions.

This was an unfortunate setback; and at Anzio too our difficulties were growing. Having been taken completely by surprise by our landing and having decided that Rome was a prize worth committing all his army in Northern Italy to hold, the enemy built up his strength rapidly round the small Allied bridgehead with the intention of driving it into the sea and scoring a spectacular if not a major victory. By 2 February, when 6th Corps was already outnumbered by five divisions to four, and when a three-day battle to break out of the bridgehead had ended in stalemate, the initiative had passed to the enemy.

The Allied air forces fought untiringly to delay the German build-up at Anzio, and it was not until 16 February that Marshal Kesselring felt strong enough to order a full-scale counterattack on the beachhead. When it was launched, the German divisions outnumbered ours by two to one; they were supported by tanks and for the first time in months by an effective air force; while for some time past, their heavy guns had ranged at will over the beaches and strategic points

of the beachhead, pounding our ships up to nearly seven miles out at sea.

Shortly after dawn on 16 February, five German divisions attacked down the Albano-Anzio road on a five-mile front, after a very heavy artillery barrage. The 56th British and 45th (U.S.) Divisions fought back skilfully, and, although enemy tanks penetrated our lines, they were counterattacked and forced to withdraw. Allied heavy bombers were thrown into the battle, in the unaccustomed role of attacking the enemy in his forming-up area, and our artillery slaughtered his concentrations. Fighting raged for four days; then, having gained only 2,000 yards along the road to Anzio, at a very heavy cost in men, the enemy paused for a week. On 29 February the second counterattack began, this time a few miles farther to the south, on the front of the 3d American Division. The Americans stood firm and inflicted very heavy casualties on the massed formations of infantry which assaulted their lines. For two days the Germans saw their assaults crumble; on 2 March they abandoned the attempt, and in doing so accepted final defeat in the most ambitious counteroffensive yet launched in the Italian peninsula.

On the main front, meanwhile, the fighting had crystallized into a protracted battle for the Monte Cassino heights, to which the 2d (U.S.) Corps was switched at the end of January, when their frontal assault on the Liri valley had failed. The Monte Cassino spur dominated the entrance to the Liri valley, and was the key to the whole German winter line; the high, roadless mountains to the north offered no chance of either bypassing or isolating it. The town of Cassino lay at the foot of the steep eastern face, partly in the low-lying waterlogged valley and partly on the lower slopes of the spur; the approaches to it were completely exposed to observation from the high ground above. On the spur itself, on the 1,600-foot peak, stood Cassino Abbey, converted into a fortress in the nineteenth century, and protected by walls fifteen feet high and ten feet thick. The abbey fitted into an intricate defensive system of closely interlocking fortified heights. The

whole formed a position which the Italian Staff College had previously declared to be impregnable, since when the Germans had added steel and concrete pillboxes.

The 2d Corps fought with great gallantry to reach both the town and the abbey; one force succeeded in penetrating the northern outskirts of the town, and another, attacking along the high ground to the north, reached on 5 February to within 300 yards of the abbey itself. This was the high point of their success; the positions gained in front of the abbey were under such close and accurate fire that it was impossible to remain there, and the rocky ground precluded digging. Finally, on 14 February, when repeated attempts had failed, the Americans were withdrawn to rest, and the 4th Indian and 2d New Zealand Division took over their sector.

The bombing of Cassino Abbey became a military necessity when the Germans took refuge behind its impregnable walls. No artillery was sufficiently powerful, and it was reluctantly decided that only heavy bombers could force gaps through which infantry could follow. When the Germans had been duly warned, to enable them to evacuate the monks and civilian refugees, a force of two hundred and fifty bombers made the attack, reducing the principal buildings to rubble, and gashing the outer walls.

When the 4th Indian Division's attack on the abbey failed, General Freyberg's New Zealand Corps prepared immediately to explore the only other means of securing it—to assault Cassino town from the north and scale the steep eastern face of Monte Cassino. The buildings in the town were immensely solid, interspersed with pillboxes, and protected by mines and booby traps. A new experiment in town fighting was therefore tried; on 15 March the narrow confines of Cassino were blasted with 800 tons of heavy bombs, before a New Zealand Brigade ad-

vanced into the ruins. The indescribable devastation caused by the bombing and the enormous craters made it difficult even for the infantry to move forward, but during the afternoon the New Zealanders overran more than half the town and captured the Castle Hill which dominated the northern approach. The First Parachute Division, the best German troops in Italy, fought back with fanatical courage when the stunning effect of the bombardment had passed, emerging from cellars and caves at the base of Monte Cassino which had survived the bombing.

The eight days' battle which followed will be reckoned among the sternest of the war. Rain on the first night darkened the skies and hampered the Indian Brigade whose task it was to pick their way through the rubble and scale the heights of Monte Cassino. The Indians nevertheless captured important heights and fought furiously for the strong-points which held out at the end of the first assault. The enemy positions interlocked closely, and accurate machine-gun and mortar fire made movement in daylight almost impossible. From the same positions, murderous fire was poured into the New Zealanders in the town, where every defended building had to be blasted by the fire of tank guns. At the end of a week's fighting, the "hotel district" of Cassino still maintained a vigorous defense.

Before the attack was abandoned, a vast regrouping was already under way, bringing the Eighth Army across from the Adriatic coast unobtrusively into the line beside the Fifth. As in Tunisia and Sicily, when General Alexander had executed similar bold maneuvers, this paved the way for an overwhelming success. On 11 May both armies attacked. Within a week Cassino had fallen, and on 4 June the Germans hastily and unwillingly abandoned Rome, to conduct a disorderly retreat to the Apennines.

The most difficult thing is to guess the enemy's plan, and sift the truth from the reports as they come in. The rest requires only common sense; it is like a boxing match, the more you punch the better.

—Napoleon

Matériel and War Morale

Translated at the Command and General Staff School from a German article by Rear Admiral Gadow in *Deutsche Allgemeine Zeitung* 26 January 1945.

THE pessimistic saying that "wars are begun with the same tactics and technical equipment with which the last war ended" has not been substantiated in this war. Lessons were learned in China, Abyssinia, and Spain which were not forgotten. As regards our own nation, we were operating in new fields at the very outset with our armored wedge tactics and the Stukas and gliders, and on the seas with our packs of submarines and many another new weapon. The enemy was at first outdistanced, but regained his lost ground. A cursory review may at least give the essential features of the developments.

From the water-cooled heavy machine guns, originally even on horse-drawn carriages and of which Lord Kitchener considered three to the battalion as sufficient, the various air-cooled light machine guns such as the Lewis, the Bren, and other models and, with us, the all-surpassing rapid-fire machine gun of the present day, have become weapons of mass employment which have dominated the field of battle. Alongside this stands the modern machine pistol, miles ahead of the machine pistol of the first World War, the weapon of surprise attack and close combat. The case has been much the same with hand grenades, automatic pistols, bayonets, and trench tools. The sharpshooter's rifle with telescope sights has found increased employment. Semi-automatic rifles as the normal weapon have made their appearance in the case of the enemy. The difference between the clumsy sheet-iron contraptions of World War I and present-day tanks of the type of the Shermans, Churchills, T-34's, Tigers, Panthers, and King Tigers, is truly astonishing. Against them arose the *Panzerfaust* [tank fist] and the *Panzerschreck* [tank terror]. The rocket projectors and mortars, flame throwers and guns on self-propelled mounts, the "Goliath" for use against obstacles and strongpoints, the assault gun, the armored

personnel carrier, the long-range cannon, the giant howitzer, the hollow-charge and magnetic antitank mine—all these show the advance made in artillery, ballistics, and the technique of explosives. From the modest Krupp antiballoon gun before Paris in 1871 has evolved the heavy anti-aircraft gun which hurls its shells to a height of over 9,000 meters. The techniques of signal communication and engineer activities have reached new heights of perfection.

In operations on the seas, the submarine, which at first gave proof of its ability to cope with enemy defense, and increased the destructive power of its torpedoes as a reply to the enemy's acoustic pursuit and observation of the approach of the torpedoes, was then forced to yield because of "radar," the enemy's radio locator and supersonic underwater pursuit equipment—but later found holes in the defense and was making use of them. Present-day naval artillery shoots with an accuracy unknown in the past, at maximum ranges; massed anti-aircraft fire provides security for the ship; while the airplane-carrier has assumed a leading place without, however, rendering the battleship unnecessary. Undreamed-of variants are found in mine construction; magnetically and acoustically detonated types and combination types are countered by equally varied methods. The greatest innovations are the individual combat weapons, the one-man torpedo, the assault and the explosive boats, the miniature submarine of the "Sturm-Wiking," the combat swimmers of the Schelde and Meuse. Many of these things originated with our allies, the Japanese: the Samurai swimmers of Wake and Hong Kong, the miniature submarines of Pearl Harbor, and others. Of all these, only the submarines were known to the enemy.

In the case of aviation, it suffices to call attention to the altitudes attainable by present-day aircraft, their operational ranges and speeds, the heavy weapons carried by

them, stratosphere flights, remote control, photographic reconnaissance, and the "V" weapons in the face of which only recently a conference of scientists in London was concluded with as great concern and ignorance relative to any method of solving the problem facing it as when it opened. The first World War closed with airplanes of plywood with wire bracing, light machine guns which fired between the propeller blades (their precursors had used carbines and iron darts as weapons), and a vain longing for "death rays."

The effect of the terrific mass of matériel employed in World War I had forced the troops to remain under cover almost constantly, but at the same time had produced the fearless assault detachment as the solution for it. A straight line leads directly from this detachment to the individual fighter of our times, to the men of the antitank units, to the armored infantry riflemen, to the men of the Volkssturm who attack

the tank in the open terrain, to the assault weapons of the coast, to the night fighter planes, or the "Kamikaze" of the Japanese. Is it not a striking fact that these modes of fighting, death-defying, often accompanied by certain death, are almost entirely limited to us and our allies? To be sure, the others have also their paratroops, their antitank troops, and their miniature submarines, and there is no question of their personal valor, but this sort of thing is not in the foreground with them as it is with us. With them reliance on matériel, mass production, and mass superiority prevails to a much greater extent than with us. They call our fighters "fanatical," and are plainly astonished at them. But these, our soldiers, are overcoming by tactical methods the war of matériel just as our command is overcoming strategically the handicap imposed by the first World War and which, in 1918, appeared insuperable.

The Soviet Navy

Digested at the Command and General Staff School from an article by Lieutenant Peter P. Anchersky in *The Navy* (Great Britain) April 1945.

THE Russian Fleet, forerunner of the Soviet Army, was founded 250 years ago. Under the guidance of Peter I ("the Great") the first men-of-war were built, and the first sailors trained in various institutions set up for the preparation of naval officers and marine specialists. Peter I drew up the first maritime laws, in which he set forth the principles of Russian naval art. Under Peter the Russian Fleet won its first victories over the Swedish Fleet at Gangut and Grencham.

In more than 200 years, from 1714 to 1918, the Russian Fleet fought twenty-four major actions against superior enemy forces and was victorious in twenty-one of them.

In Soviet days, the fighting qualities of the Russian seamen have been greatly developed, and as a result they have coped and are coping well with all their war-time tasks.

The Soviet Navy has not only successfully protected the flanks of the Red Army against the enemy at sea, it has also dealt blows to the enemy's flanks and hinterland along the coast, as well as at sea. The well-executed landing operations of the Navy, at Feodosia, Kerch, Novorossiisk in the south, and a number of places in the north proved of invaluable aid to the advancing Red Army forces.

Each of the Soviet fleets has been built to fight under the specific conditions of its own theater. The Red Banner Baltic Fleet supported the Red Army during the defense of Leningrad. All German attempts to penetrate to Leningrad from the sea were foiled by the Soviet sailors. The marines helped to breach the German defenses at Leningrad and in the liberation of the Soviet Baltic coast. Motor torpedo boats and submarines played an active part in attacks on the

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German Fleet. In the Baltic the Germans lost hundreds of ships with a total displacement of more than two million tons.

The Northern Fleet of the Soviet Navy safeguarded communications linking the USSR with its allies. During the war it has sunk more than 500 German transports carrying troops and war materials, and brought down more than 1,000 German planes.

Coordinating its actions with those of the Red Army during the defense of Soviet naval bases, the Navy landed many task forces in the enemy's rear. Together with the soldiers, the sailors drove the Germans from Pechenga and Kirkenes.

The administrative organ of the Soviet naval forces is the People's Commissariat of the Navy of the USSR, composed of the Chief of the Naval Staff, the Chief of Political Administration, various administrative branches and departments dealing with specific tasks of shipbuilding, training, supplies, and so on.

The Soviet Navy is composed of four fleets—the Northern, Baltic, Black Sea, and Pacific Fleets. In addition, there are the flotillas of the Amur River, the Caspian Sea, the Danube, and the Dnieper Rivers.

The Soviet Navy derives its manpower on the principles of compulsory military training. The draft age is nineteen. The terms of service are five years for men in ships, four years for men in shore defenses and aviation, two years for other branches. When their term of service has ended, seamen and petty officers are transferred to reserves and remain eligible for service until the

age of fifty. At certain intervals, however, they undergo refresher courses.

When they reach a naval base, recruits undergo preparatory training in ships. In their respective training detachments they prepare for their various callings for a period of twelve months. Petty officers and specialists from the ranks, senior specialists, and company commanders may remain with the Fleet for extended service if they so desire.

The war has produced a new form of training. Officers and sailors undergo special training between actions. On one of the large-scale landing operations (Kerch and Novorossiisk) training was carried out under anticipated battle conditions. Dummy defenses were set up resembling those of the Germans. Special task forces were landed, marine actions were rehearsed, as were the various operations for the capture of enemy strongpoints. Hand-to-hand fighting received special attention.

The main organizing force of the Navy is its officer staff. Their training is conducted in accordance with Service regulations. Most of the officers graduate from naval establishments. Others are drawn from reserves or from among the petty officers who are given special preparatory training.

Promotions are carried out after fixed terms of service, which vary in proportion to rank.

Officers may be promoted for distinguished service. Petty officers having sufficient knowledge and fighting experience may also be advanced to officer's rank. The Soviet Fleet has some admirals who began service twenty to twenty-five years ago as ordinary seamen.

Combat Security of Artillery in Offensive Operations

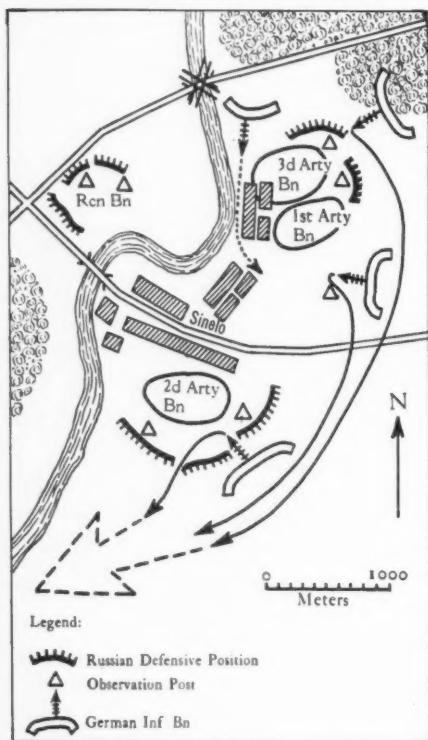
Translated at the Command and General Staff School from a Russian article
by Lieutenant Colonel V. Smirnov in *Krasnaia Zvezda*
(Red Star) 28 January 1945.

WHEN an offensive operation rapidly spreads over a broad sector of the front, especially in wooded areas, critical moments in the fighting are very likely to occur. Under such circumstances it is extremely difficult to

foresee where and when there will occur a clash with the enemy or what its character will be. But wherever any unit may be, it must always be ready to repel an attack by the enemy from flanks, front, and rear. All-

around defense at all times is an indispensable condition of success in modern combat operations.

The matter of self-defense assumes, of course, a special aspect in the case of artillery. We should consider the volume of equipment and supplies carried by artillery and its ability to do great damage to the enemy even under the most complex conditions of battle. It seems to us that in taking combat security measures we should also keep in mind that the artillery constitutes a powerful striking force capable at any moment of exerting a decisive influence on the general situation. In other words, in the exploitation



phase in the enemy's rear areas, we should employ our artillery in the decisive as well as in the dangerous directions.

In support of this contention, we shall cite

an interesting and instructive example from the experiences of the artillerymen of the 2d White-Russian Army Group. For the sake of brevity, we shall note only those details which have a direct bearing on our subject.

Our artillery regiment and its reconnaissance battalion had approached the village of Sinelo (see sketch) and had been ordered to halt. Strong forces of Germans still remained in the rear of our attacking forces, hiding in the vast forests. It was clear that sooner or later the bypassed enemy would attempt to break through to the west. On this account, immediately upon arrival at the Sinelo area, the artillerymen began the organization of an all-around defense. More attention, naturally, was given to the eastern approaches to the village.

And it was from the east that groups of enemy infantry accompanied by self-propelled artillery were discovered approaching our positions at about three o'clock in the morning. The enemy was advancing mainly along two roads, hoping, apparently, to make use of the two bridges across the river. The direction of their march and their strength are shown in the sketch. The Germans on the north flank, discovering that the bridge had been destroyed, turned off the road and attempted to get around to the rear of the 1st Artillery Battalion, which had betrayed its presence by its fire. The Germans, however, were quickly dispersed by our fire on the approaches to the northern edge of the village.

The remaining enemy groups were just as unsuccessful. Even their self-propelled equipment did not help them, so powerful and accurate was the fire of our artillery. Only on the south did the enemy succeed in getting into the area occupied by the 2d Battalion observation posts. Yet here also, owing to the firm resistance of our artillery, their attack was repulsed.

After having suffered heavy losses, the Germans were forced to leave in search of a crossing at some other place. At the beginning of their attack they numbered approximately 1,500 men, but after six hours of fighting, scarcely half of them were left. It was learned later that the remnants of

this enemy group were destroyed by our other units. The artillerymen won a complete victory. They did not permit the enemy to reach the crossings, inflicted severe losses on him, and forced him to withdraw—and this without yielding a single foot of their positions.

What tactical lesson can we learn from this example? First of all, let us examine the area where the artillery regiment had halted. It would have been much less hazardous to concentrate anywhere to the north or south of the village of Sinelo. It would have been easier to conceal the artillery in the woods, and the enemy would have passed by to one side of them unaware of their presence. But even if the Germans had noticed them, they would not have engaged them, but would have hastened on to join their other units. If the artillery had halted in the forest it would have been tantamount to giving clear passage to the Germans, to opening for them a way of escape. It must be admitted, then, that bridges and road forks, handy for enemy movements, are very suitable places for the disposition of artillery.

The artillerymen were also correct in taking up a position on the east bank. The possibility of a surprise frontal attack by the enemy was excluded because the reconnaissance battalion was located on the west bank. But if the Germans had attempted such an attack with strong forces, as serious an obstacle as the river would have weakened the force of their blow considerably. The loca-

tion of the various batteries, observation posts, and submachine guns all bore the marks of readiness for self-defense. Thus, locations chosen for the observation posts were not far from the batteries. Removal of these to a greater distance would only have scattered their forces and means in case of an attack on this defensive position. There would be no need for resorting to long-range fire, and this also was taken into account in the organization of the position. The officer personnel was fully able, even from the closest of the observation posts, to control the fire of the batteries for a variety of missions.

The general conclusion to be drawn from an analysis of the fight described above will be as follows: The enemy, withdrawing under the attack of Soviet forces, often counterattacks, attempting to check our advance and regain lost defensive positions. At times, strong German forces participate in these counterattacks, and under such circumstances critical moments are entirely possible when the artillery will be obliged to use its fire for self-defense. It is true that this engagement occurred under singular circumstances, when powerful forces of the enemy that had not yet been neutralized remained in the rear of our attacking forces. But nevertheless, it shows just as convincingly the capacity of our artillery units for all-around defense. It is important constantly to take this capacity into account during operations in enemy rear areas.

Modern River Warfare

From an article in *The Times* (London) 27 March 1945.

Although this article may appear to be out of date, it is published for the tactical lessons it contains—lessons which may soon be utilized in the Far East in driving the Japanese out of China.—
THE EDITOR.

It has always been a maxim of military art that a river is not an insurmountable obstacle. For Napoleon, rivers came third in importance after deserts and mountains

as geographical barriers; and so it has turned out in this war, for all the delay imposed by the enemy by flood and the threat of flood. But all the time the Rhine has loomed as the ultimate challenge—even in the far-off days when the Seine and the Marne still had to be crossed, before the breathless race that brought us to the Moselle, the Schelde, and the Dutch Maas. The interlude on the Roer, lengthened by Rundstedt's spoiling offensive in the Arden-

nes, stands in a place apart because of the enemy's control of the strategic dams, through which he could send flood waters pouring into the valley below and so engulf the supply lines of an advancing army. But every river, every crossing, was a landmark on the march to the Rhine.

The military engineers who, on the Rhine, are surpassing even their great record of achievement, have not lacked experience in handling the wealth of bridging material with which the modern army is equipped, for though the Germans have sometimes been stamped into leaving a vital bridge intact—Nijmegen and Remagen are the outstanding examples—their demolition technique has been most thorough. Field Marshal Montgomery's Twenty-First Army Group alone has constructed more than 1,000 Bailey bridges during its advance—and when one speaks of the Bailey bridge, there in a nutshell is the answer to most river problems. This admirable British invention, widely adopted by the American armies, was most carefully thought out before being issued, and has stood the test of every type of crossing. Its neat, simple sections, in which every bit of steel is doing its duty, have almost limitless possibilities. But perhaps its main virtue is that the sappers like it.

Our appreciation of the enemy's intentions has always foreseen that he would attempt to stand on river lines, which provide such strong, natural cover to his western frontiers. One after another they have been forced. But for a number of special reasons the Rhine, which after all has been traversed by very few invading armies, could not be treated like other rivers. Its width and swift current, and its tendency to rise and fall rapidly, called for a vast technical plan on a scale second only to the Normandy landings. Assault and bridging equipment running into scores of thousands of tons had to be hauled over battered roads, already strained to the utmost by the demands of ammunition and stores, and marshalled in tactical order on the west bank within near range of the enemy's guns, even though the greatest smoke screen in history and large

forests like the Reichswald and the Hochwald hid much of the preparation from his view. The storming of the Rhine, indeed, became a second D-day. Valuable as they are, the diversions created by the surprise crossings at Remagen and farther upstream on General Patton's front in no way diminished the tactical necessity for a general assault across the lower reaches—geography alone determined that—and the wonder is that the assault in all its complexity and teeming activity, could be mounted so soon after the west bank of the Rhine was won.

By the commander's ability to concentrate force at given points, nothing can prevent a river crossing, especially when it is mounted as a set-piece attack and has the cover of devastating air and artillery support. First there are the swarms of powered storm and assault craft, small enough to be paddled where silence is the first essential; then come the bigger boats and rafts and ferries, and the whole range of amphibians like the "duck" and "buffalo" and "weasel," astonishing hybrids from a Wellsian world that have so fully proved themselves in the flooded lowlands. Then, to proceed with this over-simplification, the floating bridges and treadways, designed to carry motor vehicles, would be thrown across, followed, as the expanding bridge-head deprives the enemy of observed artillery fire, by perhaps a Bailey ponton bridge for the passage of tanks, many of which would already have been ferried over.

Finally, once the sites were out of artillery range, would come the semi-permanent bridges, steel or wooden structures laid on pile trestles—and pile-driving in the fast-flowing Rhine will not be the easiest of these manifold operations. When the piers of a permanent structure are undamaged it is often relatively simple to bridge the demolished spans, as I saw in many an instance during a recent journey across France and Belgium to the Rhine. Since the approaches on either side of the river are obviously as important as the crossing itself, and generally involve the making of roads across country still soft and muddy from flood

water, the repair of a permanent bridge, if at all feasible, is clearly the most desirable procedure.

These many aspects of river crossings, though in the main normal bridging equipment is being used, have been accentuated by the characteristics of the Rhine itself. At Emmerich, not far below the British and American crossing sites, the river is more than 1,000 yards wide, with a flow of from six to nine miles an hour. The watch on the Rhine, indeed, takes on a new meaning, for an unseasonal touch of sun on the glaciers and snows in the Swiss Alps where it rises might bring an immense amount of water down, and an extensive system of flood warning has been evolved, including a careful check on the level of the river's main tributaries. Here the position of the French Army along the Rhine's upper reaches has been a valuable source of information.

The bridging of the flooded Maas, which may be regarded as the dress rehearsal for the Rhine assault, provided plenty of examples of what can happen. About a dozen crossings were established along the British front on which, an enormous difference from the Rhine, the great bridge at Nijmegen had already been seized intact. The floating bridge at Gennep, which set out to be 780 feet long, measured more than 4,000 feet when the sappers had completed their task, owing to a sudden rise in the floods—a condition to which the Rhine is especially subject. Apart from the mud, there would be no serious difficulty about the banks of the Lower Rhine, which flows across more or less flat country below the Ruhr valley, although the selection of crossing points nearly always represents a compromise between the conflicting needs of the military engineer and the tactician.

More than 300 miles of steel rope were used for the British crossings on the Maas, and much more of it will be necessary on the Rhine, as a means of preventing lighter craft from drifting with the current. A good deal of boat-drill, indeed, has been going on quietly on the Moselle, the Meuse, and the Rhone, for the crossing of the Rhine

clearly required a higher standard of watermanship than anything needed hitherto. In the words of one authority, any river crossing is really a matter of drill in the correct handling of a vast mass of magnificent equipment—a statement that says nothing of the colossal task of assembly, or of the many thousands of tons of stone put down to prevent the roads from collapsing.

But it is a combined operation, a superbly timed example of the three dimensions of modern war, that the Rhine assault stands out with the landings in Normandy. Leaving aside the vital role of air power, it used to be said that a crossing of the Rhine would be almost a naval operation, and true enough detachments of both the Royal Navy and the United States Navy are there. It was appreciated some months ago that the armies would need a fast ferry service capable of carrying tanks, bulldozers, and mobile guns before even temporary bridges could be thrown across the river.

After careful experiments in British rivers most closely resembling the Rhine in banks and current, it was decided that the most suitable vessels—and they had to be carried many miles overland on existing trailers—were the LCM (landing craft mechanized) and the LCV (P), designed to carry vehicles or personnel. They form part of the large British contribution to the evolution of special ships and craft for amphibious operations which have since become standard equipment in the American Navy. Both these craft, as used on the Rhine, have bows which may be lowered to form ramps for loading and unloading, and their "turn-around" is thus extremely fast. This river assignment, however, called for an entirely new amphibious technique. Naval crews, instead of operating their craft through waves and surf, had to learn how to maneuver them to and from pinpoint landing places in strong currents running across their course, and, moreover, how to launch them from muddy banks. And so the Rhine Navy has come into existence to give its aid to this, the greatest of all river crossings.

The Defeat of the U-Boats

Digested at the Command and General Staff School from an article in *The Aeroplane* (Great Britain) 16 February 1945.

NOT so many months ago the Nazi U-boat was one of the main weapons of warfare upon which Hitler was counting in order to achieve world domination. With enemy submarines inflicting staggering losses upon Allied shipping, this U-boat menace was the first thing which had to be overcome if the United Nations were to avoid defeat.

No greater story can ever come out of this war than the story of how RAF Coastal Command and RCAF [Royal Canadian Air Force] Eastern Air Command aircraft, working in complete cooperation with the Allied navies, tackled the job of anti-U-boat warfare. Day and night in all kinds of weather, for more than five years, aircraft and warships have worked together and relentlessly carried on the fight to keep the Atlantic shipping lanes open. Had it not been for the successes they jointly achieved against tremendous odds, Allied armies would not today be in Germany.

Unlike the 1914-1918 conflict, the Nazis ordered unrestricted U-boat warfare to become effective from the very outbreak of the present war. The RAF Coastal Command, to offset this U-boat menace, had only fourteen and a half squadrons when war began, and most of these were equipped with low-performance aircraft. The most common aircraft that the RAF had available for use against the U-boats was the Avro Anson, which not only had an inadequate range but was capable of carrying only two 100-pound antisubmarine bombs. With such poor aircraft, and such inadequate weapons for anti-U-boat warfare, Coastal Command at the beginning of the war had little striking power. Its aircraft were forced to go on the defensive, acting as convoy escort only when Allied shipping had come within close range of the British Isles.

The Royal Canadian Air Force, operating from bases established in Canada and Newfoundland, was also at the same time providing similar short-range escort for the Allied convoys during the first part of their trip across the Atlantic. But during these early

years of the war and, in fact, as late as the spring of 1943, there was a gap in the middle of the Atlantic which had no aerial protection. And the enemy scored many successes by assembling their U-boats into packs and by waiting to attack Allied convoys only when the ships had reached this mid-Atlantic danger zone. Experience later proved to the Germans that most of the ship-sinkings could be prevented and the U-boat packs themselves broken up when convoys were sailing within range of the RAF Coastal Command and RCAF Eastern Air Command aircraft. The U-boats, therefore, continued to operate in mid-Atlantic and Coastal Command aircraft had little success against them.

With the fall of France, and the subsequent Nazi occupation of the ports of Brest, St. Nazaire, Lorient, La Pallice, and Bordeaux, the U-boat menace became even more acute. The use of these ports enabled the German Navy to move its U-boats farther away from the coasts of Great Britain, Allied shipping losses soared to a new height, and that long-range aircraft would be needed to meet this new enemy threat immediately became obvious.

The full effect of the British Commonwealth Air Training Plan [BCATP], which had been established in Canada soon after the outbreak of war, then began to be noticed. The RCAF not only increased its strength on all of its Eastern Air Command stations, but it sent six fully equipped Canadian squadrons to serve with RAF Coastal Command in Iceland and Great Britain. Four of these Canadian squadrons were detailed for anti-U-boat warfare while the remaining two had been especially trained to combat enemy shipping. Thousands of other Canadian airmen, graduates of the BCATP, also crossed the Atlantic to serve voluntarily with RAF squadrons scattered throughout the length and breadth of the vast area covered by Coastal Command. With them went modern long-range aircraft, especially designed for antisub-

marine warfare and equipped with many devices which later proved to be decisive. Coastal Command aircraft were at last able to go off the defensive. No longer did they have to provide short-range convoy escorts, but now they started the offensive job of actual sub-hunting patrols. This new policy brought immediate results with a corresponding increase in the number of U-boats sighted and attacked. The most important effect of these sub-hunting patrols, however, was to force the U-boats to remain submerged in daylight and only by night could they risk surfacing to recharge batteries under the cover of darkness.

Ideal weather conditions and brilliant moonlight had to be encountered before Coastal Command crews had any hope of making a successful night attack against a surfaced U-boat. In 1942 the RAF produced a weapon which has since revolutionized anti-submarine warfare. It was a powerful searchlight, called the Leigh Light, which was fitted into the aircraft and which made it possible for the Allied sub-hunters to illuminate any U-boat that was caught on the ocean surface recharging its batteries at night. U-boats were now being attacked at night without warning and this caused a marked impression on the U-boat crews which spread quickly throughout the entire Nazi fleet. More and more coastal aircraft were then fitted out with the Leigh Light and their crews put through intensive training in the use of the searchlight weapon. The U-boats, however, devised new tactics to meet this Leigh Light threat, and enemy submarine crews were soon ordered to surface and recharge batteries in daylight. This meant they were forced to use their ack-ack guns and attempt to fight it out with attacking aircraft. Such tactics were followed for a long time and many bitter battles were fought over the waters by Coastal Command aircraft operating hundreds of miles away from their nearest base.

Victory over the U-boats that remained surfaced to fight it out was not achieved by Coastal Command without loss, and many of its attacking aircraft were hit by enemy flak. Casualties were also inflicted by the German

Air Force which, using French bases, sent long-range fighters to intercept Coastal anti-sub aircraft, operating over the Bay of Biscay. But by November 1942 Coastal Command had really begun to sink U-boats.

In mid-Atlantic, however, the U-boats were still sinking a staggering amount of Allied shipping, and effective measures to prevent such losses had to be devised at once. The problem was finally solved in the spring of 1943, when the RCAF and RAF very long-range Consolidated Liberators closed the mid-Atlantic gap. Operating from bases in Newfoundland, Iceland, and Great Britain, these Liberators flew such great distances that Allied convoys were at last assured of constant air protection all the way across the ocean. The closing of this mid-ocean gap, coupled with the invention of the Leigh Light searchlight and other weapons, marked the end of the first phase in the Battle of the Atlantic. U-boat losses during 1943 rose to decisive figures and a large number of them were destroyed by aircraft.

An important development contributing to these Allied victories was the granting by Portugal of the right to establish Allied air bases in the Azores. Canadian airmen, working in close partnership as members of RAF crews, were quickly sent out to carry on the hunt for more U-boats from the Azores bases.

The Germans then attempted new tactics, and Allied convoys found themselves being attacked by Heinkel aircraft equipped with glider bombs. But these enemy airplanes proved to be no match for the escorting Coastal Command aircraft. One RAF Liberator, for example, found six Heinkels attacking a convoy. Despite the numerical odds the Liberator crew, single-handed, shot down two of the enemy aircraft and chased the other four away. Saving its remaining strength for the Allied D-day, the German Navy then decided to concentrate its U-boats in southern Norway and western France. Enemy submarine crews were put through intensive antiaircraft training in the Baltic while German scientists devised new methods of U-boat warfare.

One of the most important developments of

1944 for the enemy was the equipping of its U-boats with a device called the Schnorkel, which made it possible for a submarine to remain submerged whilst charging its batteries. The Schnorkel itself is a retractable air-intake tube that can be raised and lowered from inside the underwater craft. It enables a U-boat to draw in air for its Diesels when the boat is submerged. When in use, the Schnorkel pipe projects above the water and is a little lower than the periscope. Several U-boats had been equipped with the Schnorkel when D-day came but, despite this fitting, very few enemy submarines were able to enter the English Channel, and they were unable to interfere with the Allied invasion.

Capture of the enemy submarine base at Brest, and the encirclement of the other Bay of Biscay ports by the Allied armies and the FFI [French Forces of the Interior], later brought about a major and decisive defeat for the German Navy. Deprived of the use of these French ports, U-boat crews had no alternative but to try and escape.

Coastal Command aircraft, continuing to work in the closest cooperation with the Allied navies, immediately placed a day-and-night aerial blockade over the Bay of Biscay and the western French coast. And in those areas, during August 1944, many more bitter battles were staged between aircraft and submarine. No longer did Coastal Command airmen have to fly obsolete aircraft with inadequate equipment. Now there was a surplus of highly trained air crews and to counteract the U-boat menace they had numerous squadrons of Liberators, Short Sunderlands, Consolidated Catalinas, Handley Page Halifaxes, Vickers-Armstrongs Wellingtons, Canos, rocket-firing Bristol Beaufighters, and even six-pounder cannon-firing DH Mosquitoes. Allied convoys were being escorted all the way across the Atlantic by very long-range aircraft. Depth charges, bombs, rockets, and cannons could all be effectively used against submarines sighted in daylight and U-boats were constantly being hunted down and attacked at night with the use of Leigh Light searchlights and flares.

Confidence Breeds Initiative

Major H. M. Todd in *Defence* (Great Britain).
Reprinted from *An Cosantóir* (Eire).

THE spirit of aggressiveness is a *sine qua non* to the seizing and holding of the initiative in battle. "You must win that first fight." But to win that fight, and to win, and hold, and always to be seeking, the "first move"—the power to "call the tune"—and the feeling of superiority over one's enemy—all of which are integral parts of what we call initiative—the first requisite is conscious skill with the personal weapon.

The machine-gunner who has fired his gun so much that he does it "with his eyes shut" acquires a feeling of invincibility which he expresses by seeking targets. The initiative, in other words.

The bomber who can throw a Mills bomb on to a spot one yard square every time is proud of it and looks for something more difficult to hit. The initiative.

And the sniper who can, and knows he can (and I have seen it done), kill an enemy sniper at 800 yards if he (the enemy) moves his head, looks for other heads to shoot at. The initiative, once more.

To talk of initiative to troops who know they are not trained is, at best, a waste of time and, at worst, "propaganda" which deceives nobody. In war, the initiative will always lie (a) with the side whose men think they are better trained and better armed; (b) with the side whose men are expert with their individual weapons and know it; and (c) with the side whose officers, knowing (a) and (b), are continually seeking it and who, by their own attitude, communicate to their men a restlessness which will not let them "take root" with any mental ease or comfort.

MILITARY REVIEW

ENGLISH EDITION

Starting with the April 1945 issue, the Command and General Staff School broadened its scope by publishing the MILITARY REVIEW in three languages, namely English, Spanish, and Portuguese.

The articles that appear in the Spanish-American and in the Brazilian editions will be found that same month in the English edition.

This notice is to acquaint our readers with the fact and to insure our Spanish-American and Brazilian neighbors that it will be our most sincere endeavor to translate the English text faithfully, and to produce, to the best of our ability, a magazine that is authoritative, informative, interesting and instructive.

The Editors

EDICION HISPANOAMERICANA

Con el número del mes de abril de 1945, la Escuela de Comando y Estado Mayor amplió sus actividades con la publicación de la MILITARY REVIEW en tres idiomas: español, portugués e inglés.

Los artículos que se publican en las ediciones hispanoamericana y brasileña aparecerán en la edición norteamericana del mismo mes.

Por medio de estas líneas, deseamos hacérselo saber a nuestros lectores y, asegurarles a nuestros vecinos de Hispanoamérica y del Brasil, que dedicaremos nuestro más sincero esfuerzo a traducir con exactitud la versión inglesa y a presentar, de acuerdo con los medios a nuestro alcance, una revista autoritativa, informativa, interesante e instructiva.

La Redacción

EDIÇÃO BRASILEIRA

Com o número do mês de Abril de 1945, a Escola de Comando e Estado Maior estendeu seus horizontes com a publicação da MILITARY REVIEW em três idiomas, o português, o espanhol e o inglês.

Os artigos publicados nas edições brasileira e hispano-americana aparecerão também na edição em inglês do mesmo mês.

Este aviso tem em vista dar conhecimento deste fato aos nossos leitores e assegurar aos nossos vizinhos brasileiros e hispano-americanos que serão enviados sinceros esforços na tradução do inglês, para apresentar-lhes com os meios ao nosso alcance, uma revista fidedigna, informativa, interessante e instrutiva.

A Redação

